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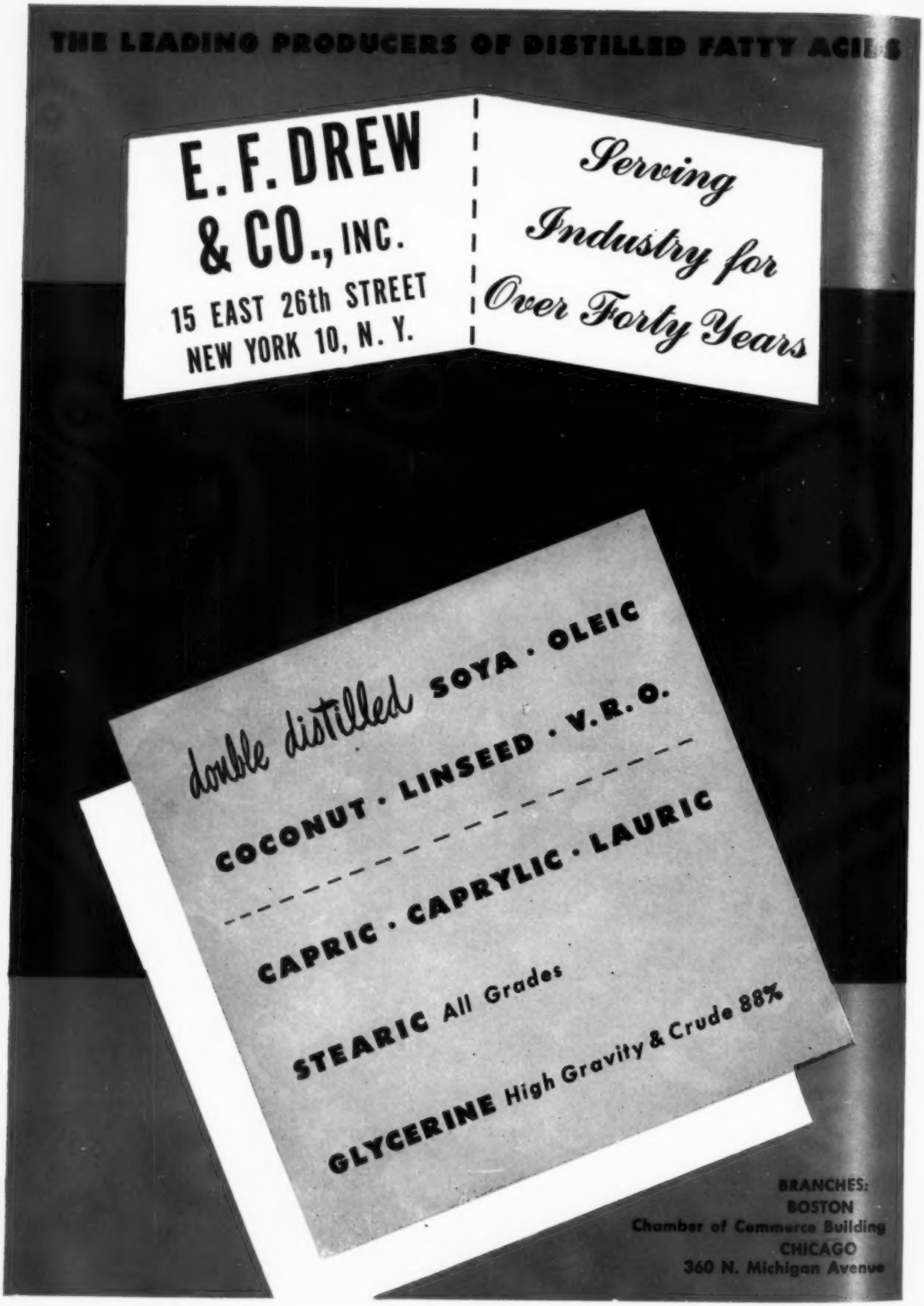
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AS THE EDITOR SEES IT

OFF hand, America seems to be going slightly nuts in this matter of product testing and approval, and the formulation of lists of approved products. The approval-list bee seems to be buzzing around no end of professional and industry associations, societies, and what not. Everybody wants to test out the other fellow's stuff and approve or disapprove it. The manufacturer of linoleum wants to tell the public what kind of wax to use on its floor coverings. The dentists have approved lists of tooth paste. The hotel people want to set up lists of approval for this, that and the other thing. The consumer protective organizations have long advised the public what to buy and what not to buy,—but at least they pay for their own research and testing.

Now comes what we consider the payoff in this approval list thing,—the proposal, discussed at the meeting of the Toilet Goods Association in New York, last month, that the American Medical Association test and approve cosmetics, among which we suppose toilet soaps eventually might also be included. The mighty and holier-than-thou AMA wants to police the cosmetic industry! Last year, insecticides were on the AMA pan. Now, it's cosmetics.

Something like this, we believe, is the biblical expression: " . . . pluck first the mote from out thine own eye." And this means, we surmise, that one should clean up his own house before he starts to judge, evaluate and disapprove that of his neighbor. In short, if ever an AMA policing job were needed, first attention should be given to the medical profession. Quackery still stalks through the land waving its license to practice medicine as it goes. What has AMA done about this? Why does it not really go out to clean up its own profession, ferret out the known quacks and publish the list in the interest of the public health of which it is always the crusading protector? Why must AMA always go afield and ignore its own dooryard? Maybe socialized medicine would not be so much of a menace to the profession if it forgot cosmetics, *et al*, for a while and looked to its own shortcomings.

We suggest the secretary of TGA should send AMA a nice large mirror for Christmas. It would be highly appropriate. And as for policing cosmetics, this is a wholly superfluous and unnecessary gesture. Uncle Sam is doing an excellent job.

SHOULD bar soaps be stampled with their net weight? The carefully considered and unbiased answer to this question is now very definitely "no." At a recent annual meeting of the National Conference on Weights and Measures, the Conference voted to rescind its action of 1947 and reverse its position. Two years ago, NCWM had gone on record as favoring net weight figures on bar soaps. Its decision to reverse this vote of 1947 came after a careful study of the subject by a seven-man NCWM committee on methods of sale, a study which included visits to soap factories, and a recommendation by this committee.

This action by the National Conference on Weights and Measures is deeply significant to every soap maker and marketer in the country. Its effects can be far-reaching. It removes what was a constant threat of potential legislation in numerous sections of the country and, we feel, will tend to eliminate future consideration of this unnecessary nuisance by legislators. The NCWM decision carries much weight,—and the fact that it is a reversal of the previous adverse recommendation makes it doubly significant.

Credit for the elimination of this bar soap net-weight threat goes directly to Roy Peet, manager of the Association of American Soap & Glycerine Producers, who personally carried the soap industry's case before the committee, won a reconsideration and eventually a reversal. His presentation of the case, including demonstrations in soap

factories, was a convincing job. He won the case and has received the commendation of the entire industry.

OLD-FASHIONED hard green automobile soap seems at long last to have come to the end of its rope. For some years, it has put up a valiant fight against being pushed out of the picture, but we fear that its eventual and complete demise is nigh. Now and then, a manufacturer will note a little spurt in demand for some peculiar and unique use. But, by and large, detergents have just about taken over for car washing. To some manufacturers, the green auto soap kettle was a handy catchall for materials which they would never dare to use elsewhere. In the old days, anything from floor scrapings to excess roof paint might find their way to the auto soap kettle. And the maker of the automobile finishes probably took the rap. Then soft potash soaps took over; now synthetic detergents. And the hard green bar passes on, saving many a soaper that feeling of guilt which he must have felt when he shipped the stuff!

THE recent sudden death of Lord Leverhulme, head of the worldwide Lever and Unilever interests, came as a shock to most American soapers. Few, outside of his own American staff, even knew that he was in the United States. To most persons in the soap industry, he was more a name than an individual, a character who topped a world empire in oils, fats and soaps, the son of the founder of the widespread Lever enterprises. And his untimely death in Minneapolis at a relatively early age, remote from his native England, seemed unreal.

Some years ago, we had the privilege of interviewing Lord Leverhulme in New York,—indeed a rare privilege as he scrupulously avoided personal publicity. We found him a keen, likable person with a wide knowledge of world markets for soaps and fats. But his main interest was not in selling more Lever soaps. The welfare of his numerous employes, both here and abroad, was his chief concern. He was prouder of the large proportion of employes who had been with his companies for many years than he was of the increasing sale of Lever products. His recent health was such that he might better have remained in England, but he undertook a journey around the world to view at first hand the postwar condition of his numerous enterprises. His passing has saddened his many friends the world over.

PROPOSALS for an "equalization" fee on all imported oils and fats as a means to prevent them from selling below prices for domestic fats took the form of a bill introduced last month in Congress by Representative Walter K. Granger, Utah, Democrat. When prices for domestic fats drop below established parities, the Secretary of Treasury would assess and collect an import fee, over and above any established tariff duties, equal to the difference between parity and the current market. Parity prices would be determined and announced shortly by the Secretary of Agriculture. To encourage exports of fats and fatty materials, presumably soaps as well, a complicated system of negotiable drawback warrants would be issued to importers upon fee payments and redeemable when exports are made.

No bar to free imports of oils and fats is intended, say the sponsors of this legislation, but rather a stimulus to exports. Imports of strategic oils such as coconut, palm, and castor will not be impeded, they hold. All of which is very fine if it works out that way. But that is the big "if." We can see several potential complications which might take something of a farcical turn. We wonder about ways and means of determining parity prices and the thinking of USDA personnel which might have this vital matter in charge as time goes on. What is parity for coconut oil? Palm oil? Suppose the supply of negotiable warrants becomes largely in excess of needs?

Fat prices, chiefly tallow, grease and lard, have been too low for six months. But has our long-range thinking been completely warped by the previous ten years of boom prices? Do six months of low prices warrant rushing a bill into Congress to put prices up? And a bill as complicated as a Rube Goldberg puzzle. We doubt it seriously. If the bill has any merit outside of jacking up the price of tallow, we fail to see it.

Net Weight Marking for BAR SOAPS?

By Roy W. Peet, Manager, Assn. Amer. Soap & Glycerine Producers

The following article is based on excerpts of a talk given by Mr. Peet before the 34th National Conference on Weights and Measures sponsored by the National Bureau of Standards, held in Washington, D. C., May 26. As a result of this discussion and other meetings on the problems of the soap industry in relation to net weight marking of bar soaps, the group has decided not to recommend net weight marking on bar soaps.

THE 1947 recommendations in reference to net weight on bar soaps refer to a method of sale rather than a marking requirement. I assume that by this recommendation it was not intended to require the sale of all bar soaps at so much an ounce but to require that bar soaps should be marked with the net weight—the product still being sold at so much per cake. I am, therefore, treating the recommendation as one relating to marking only.

Soaps are unusual in that moisture content present at the time of manufacture varies widely from product to product and from brand to brand. The amount of moisture present in soap depends upon the type of soap and the different processes and equipment used in its manufacture. A particular brand of soap bought by different consumers at the same time may show a wide variation in the amount of moisture present. The lack of uniformity in moisture content may be the result of differences in the age of the product; storage conditions to which it has been subjected since it was manufactured; temperature and humidity conditions while in storage or in transit, etc. Other factors having a bearing on the condition of the soap at the time of its sale are the type of store in which the soap is sold; the geographical location of the factory where it was made; the warehouse in which it was stored; the season of the year; and the economic conditions in the country during the previous year or two.

I. Moisture Varies at Time of Manufacture

BASICALLY, the problems that arise in considering the proposed requirement grow out of the fact that bar soaps have of necessity a certain water or moisture content. Weights and measures officials, who have had the opportunity to study this matter at first-hand, realize something of the scope of this matter of moisture. Here are some facts on moisture in bar soaps: *Milled Toilet Soap*—Most perfumed toilet soaps are referred to as "milled." This type includes such soaps as "Palmolive," "Lux," "Camay," "Sweetheart" and many others. The term "milled" means that the soap undergoes a processing of milling and compressing, which is roughly equivalent to kneading and rolling of bread dough. The result is a finely homogenized finished product. For these operations, the material must have a certain amount of plasticity which is imparted to it by water. Furthermore, molding and stamping the finished bar efficiently and cheaply would be impossible without this plastic quality. When milled soaps are ready for shipment, the moisture ranges from six to 15 per cent. The federal soap specification for milled soaps, P.S. 621A, allows a maximum moisture content of 15 per cent.

Cold-Made Toilet Soap—In addition to the milled toilet soaps, there is a type of toilet soap which, by reason of the particular manufacturing process used, is called "cold-made." In this type, the moisture content is higher and has a range of from 19 to 26 per cent.

Ordinary Laundry Bar Soap—Soap of this type includes such brands as "Fels Naptha," "Octagon," "Kirkman's," "American Family," "P & G White Naptha" and many others. Processes by which laundry bar soap is made are less complicated, but here, too, a minimum water content is required. Huge blocks of soap, weighing about 1,000 lbs., and formed when the soap from the kettle is allowed to dry for about a week in frames, are cut into slabs, and then into bars. A product containing less moisture would be very difficult to handle. The moisture content in finished bars of this type ranges up to about 40 per cent. Federal Soap Specification PS 591-A allows a maximum of 36 per cent.

White Floating Soaps—such as "Ivory" and "Swan," are made by a different process, while other floating soaps are produced in still another way. In imparting to the soap the ability to float, a definite water content must be present. The range is from 20 to 34

per cent—the maximum permitted by Federal Specification PS 616-a.

In short, the range of moisture content in bar soaps at the time of production, varies from 6 to 40 per cent. The range of 6 to 40 per cent moisture content should be borne in mind because it is basic to an understanding of the whole moisture problem. This wide range is not an arbitrary decision of the manufacturer, but depends on: type of soap, process of production, equipment available, kind of fats and oils and other raw materials used.

II. The Net Weight of Two Bars of a Single Brand May Vary Widely at Time of Consumer Purchase

AFTER soap leaves the factory, it is subject to numerous conditions which cause a loss in moisture content and, consequently, its net weight. Temperature and humidity are easily understood since they affect our own personal comfort and we all know how they can vary. But there are conditions other than atmospheric which produce the same end results in bar soaps. Was the warehouse heated and to what extent? Was it hot in summer and, if so, how about air circulation? Was any particular shipping case in the middle of the pile where it was better protected, or was it on the outside of the pile and thus subject to the full effects of the heat. Was an individual bar in the middle of the box or on the outside? The inside bar remains more uniform of course.

Is the soap wax wrapped, wrapped with plain paper or not wrapped at all? Each type of wrapping has an effect on moisture loss. And one of the greatest variables of course, is, the consequent length of age and time of exposure of the soap to various conditions of temperature and humidity. Individual boxes of soap may vary tremendously in their time of storage at the factory. At the time of manufacture no one knows where they are going, through what channels or how long it will be before they are bought by a consumer. I have seen instances of soap stock being in the hands of the wholesale and retail trade for 12 months. General economic conditions, as well as the competitive situation, both play a part in making this age factor a variable. Channels of trade through which soap is sold, whether direct from factory to retail market with a quick turnover, or from factory to wholesaler or jobber to retailer for slower turnover make a big difference in the age of the soap reaching the consumer. Drug stores, grocery stores, department stores and syndicate stores differ widely in their rates of turnover. The rate also varies among stores in the same class, and among stores in other classes. So that, when the consumer buys a cake of soap it is very understandable that there may be a variation of 20 per cent in the moisture content. Twenty per cent is not an extreme figure.

A bar of ordinary laundry soap containing 35 per cent moisture at the time of manufacture might easily become so dried out that the moisture content at time of retail sale might be five per cent, particularly if the soap had undergone unfavorable marketing conditions. Such a condition might arise from the soap being on the retail shelf or in storage too long,—the former being caused by other newer stock having been placed in front of the older bar of soap—, the soap may have been sold in a retail store with a low rate of turnover, or it may have been stored near a radiator or placed in a window display exposed to the sun. Thus, we may have a difference of 30 per cent between the manufactured and final sales weight. If a bar weighs 10 ounces at the time it is produced, it may weigh as little as seven ounces at the time the consumer purchases it in the retail store. Or it may weigh nine and a half ounces. No one can tell at the time it is produced what it will weigh at time of consumer purchase because no one knows the conditions it will meet or the length of time until the consumer purchase.

III. How Can a Bar be Marked

IF faced with a regulation which says he must mark the bar or wrapper with net weight, the manufacturer faces two alternate principles of marking. The first assumes favorable marketing conditions for his product in all cases. He may mark his ten ounce product nine ounces. However, at time of retail sale some bars may weigh only seven ounces, and the range will be from seven to more than nine ounces. Under these conditions it is certain that he will violate the law, not occasionally but constantly. His other alternative is to assume unfavorable conditions for his product and mark an anhydrous or dry weight of seven ounces. Now he is safe but most of his soap bars will be sold at a net weight well above the marked weight.

IV. What is the Result?

IF he marks nine ounces, all too frequently the consumer will find the product weighs less than nine ounces, and will believe she has been cheated. She will complain to her retail store, to the weights and measure officials, and to the manufacturer. And when I say "she" I really mean "they" —thousands and thousands of "she's." The result will be chaos and confusion caused by fruitless investigation. Invariably, the answer will lie in the unhappy faculty of water to evaporate. Probably the problem really will be "what primarily caused the evaporation in this particular case?" The retail store may be placed in an unfavorable light because the purchaser may compare his weight with the weight of the same product in another store. Maybe the first store is a small independent dealer with a slow turnover and the second is a large chain or super market with a fast turnover. There easily may be a regular difference in weights between the same brand in the two stores with the result that the consumer will turn to the dealer with the faster turnover. The weights and measures official, either because of complaints or as a matter of routine, will check the actual weight against marked weight and if he finds a variation of 20 per cent or more, would certainly feel that prosecution was in order.

The manufacturer will always hear about the bars which were underweight. The complaints always will be in regard to the unusual case—not the ordinary or average condition. If one-fourth were above weight, one-half the exact weight and one-fourth below weight, 100 per cent of the complaints would come from the 25 per cent marked weight.

It would be a long, slow and

painful process for everybody before weights and measures officials became educated or reconciled to the fact that a leeway of 20 per cent or more would have to be permitted in the net weight of bar soaps. The manufacturer would be in a constant state of explanation and laborious education with both consumer or weights and measures officials.

On the other hand, if the manufacturer chooses the other alternative, and marks an anhydrous or dry weight, the variation will be on the other or plus side and the marked weight will have no resemblance to the real weight in most cases.

V. Who Benefits?

UNDER such circumstances, it does not benefit the consumer to mark bar soaps with a net weight. Neither she nor a weights and measures official can check actual against marked weight and know whether or not she is being short-changed. The result certainly would be endless confusion and irritation until the regulation fell by the sheer weight of its own impracticability. If the other course is pursued and the bar marked with the dry weight, likewise the marked weight becomes meaningless because it bears no resemblance to reality in most cases. Thus, net weight marking of bar soaps is truly a nuisance regulation benefitting no one.

VI. Soap is Different

BAR soaps are unique in respect to the moisture factor because they are the only product which has all of the following three qualities:

1. A bar of soap is sold by the unit. No box is needed to hold it together. This makes it different from flour, sugar, etc.

2. Bar soaps are sold in a wide variety of retail outlets, including: grocery stores, drug stores, department stores, syndicate stores, variety stores, country general stores.

Few other products are so widely distributed. The channels of distribution from factory to store are consequently complex and varied.

3. Bar soaps have a high moisture content, yet moisture is not an important factor to the housewife in buying soaps. In many other products,

(*Turn to Page* 147)

Synthetic Detergents' Rise Shown In New Milwaukee Journal Survey

DETAILED information on soap and allied products and brand preferences are given in the recently issued 26th Consumer Analysis of the greater Milwaukee area, published by the Milwaukee *Journal*. The data contained in the survey are based on questionnaires from 5,000 representative families in the area. The section on soaps and allied products covers: bleaching fluid; bluing; laundry starch; cleansers for dishes, fine fabrics, household laundry and walls, floors and woodwork; scouring cleansers; synthetic detergents; toilet bowl cleaners; toilet soap; water softeners; wax and window cleaning products.

Synthetic detergents continue to hold the lead in popularity for dish washing. "Dreft," made by Procter & Gamble Co., moved in to first place after being runner up last year to "Vel," made by Colgate-Palmolive-Peet Co., which dropped to second place in 1949. "Ivory" bar soap (P&G) moved into third place, after being tied with "Duz" (P&G) for fourth place in 1948, just behind "Ivory Flakes" (P&G). "Ivory" bar soap held the top spot in 1946 and '47. "Fab," new Colgate-Palmolive-Peet detergent, in fifth place, behind "Duz," jumped from less than one per cent reported used in 1948 to 7.5 per cent for 1949.

"Lux" flakes, a product of Lever Brothers Co., was first in the category of cleaners for fine fabrics, increasing its lead by four percentage points to bring it up to 42.2 per cent. Next came "Ivory Flakes" with 17.7 per cent, followed by "Dreft" (P&G's synthetic) 11.1 per cent, "Chiffon Flakes" (Armour & Co.) 10.2 per cent and "Vel" 6.6 per cent.

Household laundry products were mainly of the soap variety, "Rinso" (C-P-P) in first place, "Oxydol" (P&G) second, "Duz" (P&G) third, with percentages of 19.6, 17.5 and 16.5, respectively.

"Spic and Span" (P&G), "Soilax" (Economics Laboratory) and "Ivory" bar were the top three most widely indicated products used for walls, floors and woodwork.

In the new category, "Synthetic Detergents," the following product preferences and their percentages were given: "Dreft" 34.7; "Vel" 26.2; "Tide" 19.5; "Fab" 17.4; "Breeze" (Lever Brothers) 8.6; "Surf" (Lever) 5.4.

Another new category, "Window Cleaning Products," found "Gold Seal Glass Wax" at the head of the list with 48.4 per cent; "Windex" was next with 24.9 per cent.

"Ivory" bar soap again led the list as the most popular bath soap. It was given a 23.3 per cent preference, which was one and one-third per cent greater than last year. "Lux," also improving its standing was in second place with 18.6 per cent, while "Lifebuoy" (Lever Brothers) was third with 17.4 per cent. "Palmolive" (C-P-P) was fourth with 13.4 per cent, while the top five were rounded out with Camay (P&G) with a percentage of 12.1.

"Lux" topped the list for toilet soap for hands and face with a 1949 percentage rating of 28.6, as against 25.2 in '48. "Camay" moved from fifth to second place with 20.0 per cent. "Palmolive" also increased in strength and moved into third place with 16.0 per cent. "Ivory" (14.3 per cent) and "Sweetheart" (Manhattan Soap Co.) finished in that order, the latter with 11.5 per cent.

"Johnson's" paste wax (S. C. Johnson & Son Co.), while holding first place with 52.5 per cent, lost ground to "Simoniz" (Simoniz Corp.), which rose from 9.2 per cent to 35.5 per cent. "Johnson's" 1948 percentage was 71.2. That brand also topped the self-polish liquid and liquid rubbing wax classifications with percentages of 61.0 and 63.8, respectively.

T.G.A. Reelects Pennock

Ralph Lewis of Ayer New Treasurer
Mayham Hits A.M.A., Predicts Trade Practice Rules. Soap Package is Honored at 14th T.G.A. Convention

OPPOSITION to efforts of the American Medical Association to impose a seal of approval on products of the industry; the work of the industry to have the 20 per cent excise tax on cosmetics and toilet articles removed or reduced; the probability of the issuance of trade practice rules; the reelection of Charles A. Pennock as president and the naming of Ralph P. Lewis of Harriet Hubbard Ayer, Inc., New York, as treasurer highlighted the discussion and activities of the three-day, 14th annual convention of the Toilet Goods Association held at the Waldorf-Astoria Hotel, New York, May 17-19. The Charles S. Welch Memorial Award was won this year by Gourielli, Inc., New York, for its "Five O'Clock" and "Here's How" eau de cologne and toilet water bottles in the shape of cocktail shakers. Honorable mention went to Mem, Inc., New York soap firm, for its "Guest Pack" containing six cakes of guest size soap and six guest towels.

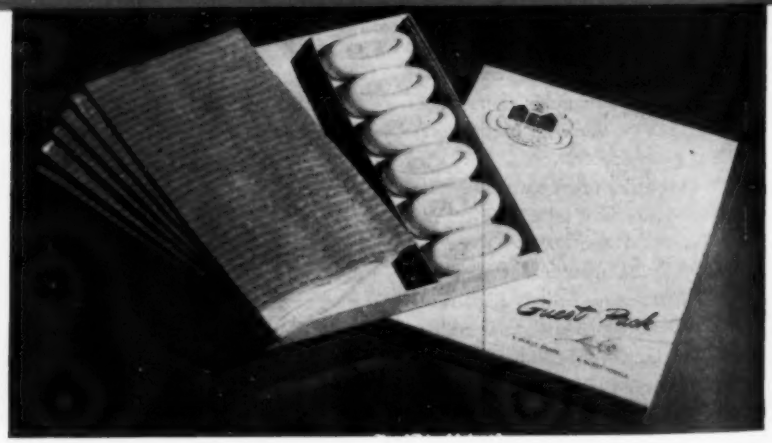
The formation of a "Fragrance Foundation" to conduct an educational program on all products in which fragrance is the compelling force of purchase or use was announced at the meeting by J. S. Wiedhopf, president of Parfums Ciro, Inc., New York, and chairman of the "Committee on Use and Marketing of Perfume Products." Miriam Gibson French, who is in charge of the tax publicity effort of the T.G.A., was named to act as coordinator of the foundation's activities.

A 1948 retail volume of $700 million by the toilet goods industry was reported by Charles A. Pennock, president of Hudnut Sales Co., New York, reelected to serve another year as T.G.A. president. A prediction that the annual volume figure will reach a billion dollars within 10 years was made in a talk by Frazer Sinclair, president of Pope Publishing Co., New York, publisher of *Beauty Fashion*.

Changes in the industry's methods of merchandising and distribution as a result of trade practice rules, drawn up at the request of the Federal Trade Commission, were predicted by Stephen S. Mayham, executive vice-president of the T.G.A. He announced a new association activity, the formation of an emergency committee, which held its first meeting during the convention. Mr. Mayham revealed that during the recent war it was only sheer luck that kept the industry from being put out of business. To prepare against such an eventuality in the future, the board of directors of the association voted to appoint a committee to study the question and draw up a plan for the toilet goods industry should another national emergency develop. Mr. Mayham also asked that membership in the association be expanded. The T.G.A. now numbers 375 active members and

CHARLES A. PENNOCK, PRESIDENT

"Guest Pack" by Mem, Inc., New York, won honorable mention.



about 125 associate members. He suggested the possibility of conducting a vigorous campaign to interest the 300 small firms not now members.

The need to meet contingent costs arising from the possible repeal or reduction of the 20 per cent excise tax on toilet goods was also mentioned by Mr. Mayham.

AMA Plan Opposed

THE efforts of the American Medical Association to set up a committee to issue seals of approval for various cosmetics was strongly opposed by Mr. Mayham on the ground that the committee is not only not competent to judge cosmetics, but "it is swayed by considerations other than those strictly within the realms of science and medicine." The AMA conducts one of the most profitable publishing businesses in the U. S., Mr. Mayham stated. While he would not recommend refusal to cooperate with the AMA's committee on cosmetics, Mr. Mayham suggested that manufacturers whose products are on the borderline of the medical field should consider carefully both the advantages and disadvantages of any course of cooperation with the AMA before acting.

Mr. Mayham's remarks were contained in his report as executive vice-president and were presented at the morning session, May 17. Reports of the other officers and counsel for the association were given at that time.

In his president's report, Mr. Pennock stated that the buyers' market has now returned for almost all lines of business and that the need for "hard-hitting" selling is here again. He pointed out that the annual volume of the industry had doubled in the 1939-1949 period. "There is plenty of business to be had, but can it be gotten at a profit?" he asked. He declared that there has been a decline in the cost of some raw materials, particularly essential oils, but generally speaking costs of materials are still out of line with retail selling prices in the toilet goods and cosmetic fields.

As an illustration of the opportunities to be found in new products, Mr. Pennock pointed to the fact that 10 years ago shampoos were doing an annual volume at retail of about $15 million, whereas now they do $50 million annually.

Mr. Pennock also discussed the 20 per cent excise tax. If the tax is allowed to continue stamping toilet goods as a luxury industry . . . no one can tell what might happen if and when the next emergency arises, he observed.

In his report, Hugo Mock, T.G.A. counsel, speaking in an individual capacity, dealt at some length with proposed trade practice rules which, he said, might be "somewhat milder than an attempt to enforce the Robinson-Patman law without the benefit of rules . . ." Mr. Mock also covered the use of hormones in cosmetics; testimonials; home permanent wave sets; and trade marks. He concluded by advising manufacturers to "do your planning now, although naturally the timing of any changes in your distribution methods will depend upon competitive conditions."

The work of the scientific section of the T.G.A. during the past year was outlined by its director, H. D. Goulden. He reported that again last year the volume of advertising copy submitted for review had increased. He also listed the materials on which new or revised standards have been issued during the past year. The committee is at present considering a standard for sodium carboxymethylcellulose, for which no standard exists at present.

The final business of the May 17 morning session was the election of officers and directors. The only change among the officers was the election of Ralph P. Lewis of Harriet Hubbard Ayer as treasurer, to succeed Richard Stern of Fred Mulhens, Inc., New York.

Welch Award to Gourielli

FOLLOWING luncheon the Charles S. Welch Memorial Award was presented to Roy Titus, general manager of Gourielli, Inc., by Pierre Harang of Houbigant, Inc., New York, chairman of the award committee. Mr. Pennock, who presided at the luncheon session, introduced Mary Dunhill, daughter of Alfred Dunhill, head of the London firm bearing his name; Carl Eric Gillberg, president of the Soap, Cosmetics and Toilet Goods Assn. of Stockholm, Sweden, who spoke briefly on the problems facing the industry in his country. They are similar to those facing toilet goods manufacturers in the U. S., though on a smaller scale, in keeping with the size of the Swedish industry. The excise tax there is 75 per cent, he said. The tendency toward state control and socialism is stronger than in the United States, according to Mr. Gillberg, who added that developments in the whole world are dependent on the course taken by the United States. "By working for the continuance of free enterprise and economic and social freedom in the United States you are working for it throughout the whole world,"

S. L. MAYHAM, EXEC. V. P.

RALPH P. LEWIS, TREAS.

he concluded. Also present at the luncheon were Thomas Delehanty of the U. S. Department of Commerce, Xavier Serra, who developed "Tabu" perfume and George S. Roys, London advertising executive.

The association's efforts to publicize and eventually have the 20 per cent retailers' excise tax on toilet preparations removed or reduced were discussed in detail by Miriam Gibson French, who is in charge of the effort for the T.G.A. She reported that daily newspapers, consumer magazines, trade publications, radio and television programs, women's clubs and retailers have cooperated generously to publicize the unfairness of the tax, and the reasons justifying its removal or reduction.

Mr. Wiedhopf, chairman of the committee on the Use and Marketing of Perfume Products, in his talk on the campaign to stimulate fragrance sales, announced the establishment of the Fragrance Foundation.

The final talk of the afternoon session, May 17, given by Harry Singer, of Consumer Testing Institute, dealt with selling.

The May 18 morning session opened with a discussion of labor relations by John P. Currie, consultant on the subject, whose talk was entitled: "Forecast of Labor Relations Under New Federal Legislation." He was followed by Wallace Werble of F. D. C. Reports, Washington, D. C., who covered "The Washington Scene and the Toilet Goods Industry." Frazer Sinclair, publisher of *Beauty Fashion* and *Drug & Cosmetic Industry* magazines, the final speaker at the morning session, discussed the future of the industry. He predicted that by 1958 consumers will spend one billion dollars a year for perfumes, cosmetics and toilet preparations. Mr. Sinclair based his prophecy on the fact that the pattern of cosmetic sales has been closely paralleling the rising line of disposable consumer income.

The *Good Housekeeping* film, "14-Day Miracle Beauty Plan," was shown following the group luncheon May 18, the afternoon of which was given over to a closed meeting of manufacturers only.

Scientific Section Meets

AMONG the papers presented at the meeting of the Scientific Section, May 19, was that of Roy J. Huttleston of Schimmel & Co., New York, whose topic was: "Perfume Ingredients Which Cause Discoloration in Cosmetics and Soap." He stated:

"The danger of discoloration from perfume ingredients is largely confined to those cosmetic products which are slightly alkaline. A trace of alkali acts as a catalyst for condensation reactions, thus causing products to be dark colored. The aldehydes, a class of compounds which includes some of the most valuable perfume materials, are perhaps the greatest trouble-makers. Among the aldehydes which frequently cause discoloration are cinnamic aldehyde, citral, heliotropin and vanillin.

"Carnation perfumes, which are based on the phenols, eugenol and isoeugenol, can be used only in colored soaps. Jasmine and neroli perfumes contain methyl anthranilate, which condenses with aldehydes and ketones to form stable but highly colored products.

"Most of the alcohols are resistant to alkali and they often make up the bulk of a perfume compound. The substances which do cause discoloration may not be harmful if they constitute only a minor proportion of the mixture."

In discussing "Odor and Olfaction," Paul G. Lauffer of George W. Luft Co., Long Island City, said:

"Modern advertising has so flooded eye and ear that new approaches are needed. Appeal via the nose has been studied only superficially, and there is little real knowledge of the principles of odor and olfaction. Adequate understanding must be based on fundamental data of four types: (1) molecular structure and its relation to odor; (2) classification and measurement of odors; (3) olfaction, the physiological mechanism of odor perception; (4) psychological effects of odor. In each of these fields, complete clarification of the odor problem awaits further development of the fundamental science, but much progress can be made by adequate application of principles already established. Recent advances in related sciences suggest promising points where the odor problem may be attacked to fill in some of the vast gaps now existing.

"We need a modern Von Helmholtz to develop the physical and physiological experiment and theory which will give us a science of olfaction comparable to that of vision. Odors operate directly, to produce moods and emotions, with little interference from the highly inhibited thought centers. An understanding of their use as sales aids offers such rewards that intensive research is certain to be focused on the odor problem."

Samuel Klein of Van Dyk & Co., Belleville, N. J., speaking on "Olfactory Evaluation of Aromatic Raw Materials" suggested that:

"Most persons, contrary to general belief, possess a keen odor sense, and are potentially capable of undertaking aromatic material evaluation. The main requirements are an active interest and an accumulation of experience."

He proposed a test for screening those with deficient olfactory acuity. The odor characteristics of aromatic substances were also discussed, as well as blotter testing and some points relative to the evaluation of commonly used aromatics.

A paper prepared by John A. Killian and M. Elizabeth Marsh of Killian Research Laboratories, New York, entitled "Beneficial and Adverse Effects of Soaps on Skin as Determined by Repeated Exposure Tests" was read by Dr. Killian. The paper begins on page 44 of this issue.

Plans Golf Outings

The golf auxiliary of the Chicago Perfumery, Soap & Extract Assn. and the Chicago Drug and Chemical Assn. recently announced plans for a series of outings to be held at various clubs. Among those scheduled are Tam O'Shanter, held May 16; Rolling Green, June 16; Olympia Fields, July 12; Medinah, Aug. 11, and Elmhurst, Sept. 15. Joseph Sell, Mallinckrodt Chemical Works, Chicago, is chairman of the prizes committee.

Soap Industry Wage Hearing

Propose Synthetic Detergents, Glycerine be Included. Union Representatives Ask $1.15 Rate

WHAT the soap industry's minimum wage rate should be, whether synthetic detergents and synthetic glycerine should be included in the definition of products of the soap industry and the possibility of establishing a separate minimum wage rate structure for potash (and possibly small soda) soapers were the principal topics of discussion at a hearing for the soap industry on a proposed amendment to the Walsh-Healey Act. The hearing was conducted by the wage and hour and public contracts divisions of the Department of Labor in Room C of the Departmental Auditorium, in Washington, D. C., May 10. William B. Grogan presided.

A minimum wage of $1.15 an hour was advocated by representatives of two unions in the industry, who also urged that synthetic detergents and synthetic glycerine be considered products of the industry. Roy W. Peet, representing the Association of American Soap and Glycerine Producers, Inc., E. B. Coyle of Fels & Co., Philadelphia, E. O. Gillam, Gillam Soap Works, Fort Worth, Tex., expressed opposition to the $1.15 an hour minimum. Mr. Gillam submitted a counter proposal in which he suggested that the minimum wage rate be determined by the number of employees in a soap plant, with an ability to pay proviso included.

Andrew P. Federline, representing the Soap & Detergent Manufacturers Association (which has since suspended operations), requested that consideration be given to determining the minimum wage or the prevailing minimum wage for potash soap manufacturers as a product segment of the industry. He stated that the tabulation on the percentage distribution of plant workers showing the breakdown between the potash soap workers and other soap workers brings out the fact that there is a differential in favor of a lower minimum wage for potash soap manufacturers. He also questioned the technique of determining minimum wage rates by concentration of workers at a certain wage level, which he said "gives too much weight to the wage rates paid by the larger companies in the industry."

Mr. Federline also urged that synthetic detergents be considered an industry product if it is possible to eliminate manufacturers of basic petroleum.

Mr. Peet indicated that, based on a recent survey, 62 per cent of the firms he investigated made both potash and non-liquid soaps and that 26 per cent made soda soap only and 12 per cent made potash soap only. The (industry) difference is by size of company, not by type of product he pointed out. On the question of the definition of the industry, Mr. Peet said his group had no particular feeling one way or the other and that he did not feel he could speak for companies other than soap companies that are producing synthetic detergents or synthetic glycerine. "As far as we are concerned, the definition as set up can remain," he said.

On the question of provisions for the employment of learners or apprentices, little interest was indicated at the hearing. Most of the participants were of the opinion that plant minimum wage rates covered apprentices and learners.

The hearing was called by the Administrator of the Wage and Hour and Public Contracts division of the Labor Department. A wage survey of the soap and glycerine establishments made by the Bureau of Labor Statistics has indicated that the prevailing minimum wage of 40 cents for the soap industry, as fixed in a determination dated July 28, 1939, no longer reflects the prevailing minimum wages that are being paid in the industry. The hearing was called to give interested parties the opportunity to submit wage data and their views and arguments on the following points:

(1) The prevailing minimum wage in the soap industry; (2) the definition of the soap industry and whether or not it should be amended to include synthetic glycerine and synthetic detergents; (3) the determination of the prevailing minimum wage rates in the manufacture of synthetic glycerine and synthetic detergents, and (4) to decide if there should be included in the amended determination for the soap industry provision for the employment of learners and/or apprentices at sub-minimum rates, and if so, in what occupations, at what sub-minimum rates, and with what limitations, if any, as to length of period of employment and the number or proportion of such minimum rate employees.

PARTICIPATING in the hearing, in addition to those mentioned above, were Kermit B. Mohn, chief, National Industry Studies Division, Bureau of Labor Statistics, Department of Labor; Benjamin C. Siegal, representing the Gas, Coke and Chemical Workers of America, CIO; Louis A. Doering, representing Independent Soap and Edible Oil Workers Union; Sylvia Pacelle, representing the Manufacturing Chemists Association; F. M. Hoffheins, Chemical Division, Office of Domestic Commerce, Department of Commerce; Lowell Kilgore, technical adviser, Office of Domestic Commerce, Department of Commerce; Ralph French, Bureau of Apprenticeship, Department of Labor; and Verl E. Roberts, chief, Minimum Wage Section, Wage Determination and Exemptions Branch, Wage and Hour Public Contracts Division, Department of Labor; James E. Hughes, attorney, Solicitor's Office, Department of Labor.

(*Turn to Page* 153)

Effect of SOAP

Beneficial and

as Determined by

By John A. Killian, Ph.D. and M. Elizabe
Killian Researc

COMPREHENSIVE appraisals of both the salutary and the detrimental effects of soaps and nonsoap detergents upon the structure and functions of skin present, to an investigator, more interrelated problems than do experimental studies of the pharmacologic actions of any other agent which may be applied to the cutaneous surface for either cosmetic or therapeutic purposes. These problems are attributable to several factors, e.g., (a) the variety of possible ingredients in commercial soaps—different fatty acids, alkaline metals, builders, perfumes, of which any one may exert a direct effect upon skin, (b) the fact that soaps must be tested in aqueous solutions whose physical structures and chemical properties, under all conditions of contact with skin, are largely unknown, and (c) soaps exhibit indirect actions which are secondary to its detergent capacities. These indirect effects may be the resultants of primary actions of the soap solution (1) upon the skin structures and functions, and (2) upon the diversified contaminants adherent to the cutaneous mantle. It is not possible to evaluate all of the acute and chronic, direct and indirect effects of soap by one experimental procedure. However, it is the conviction of the authors that a correlation of results obtained by two mutually supplementary methods will contribute, in a substantial measure, to the summation of information on some of the actions of soaps on skin. It is the purpose of this report to present a brief summary of some of the experimental evidence upon which the authors have based their prediction.

The first objective in an investigation of soaps is their classification as primary cutaneous irritants or mild detergents. This classification is dependent upon the accumulation of adequate experimental evidence for a differentiation between what Sulzberger and Baer have defined as the "usual or normal effects" and the "unusual or abnormal effects" of soap upon "normal skin." Physiological, as well as dermatological, literature contain numerous references to the potentialities of factors other than the physical and chemical properties of detergents which may influence cutaneous reactions to soaps. Obviously, it is imperative that an experimental method adopted for purposes of comparative evaluations of normal and abnormal effects of soaps on skin should exclude or maintain under control all extraneous influences upon cutaneous reactions to products under test.

At the meeting of this Section of the Toilet Goods Association in 1948, the authors reported that, in their experience extending over a period of 13 years, the method of patch testing had yielded reliable and significant results in determinations of primary irritant properties of soaps upon large groups of subjects who were representative of the average normal and abnormal skins, i.e., the seborrheic and xerotic types. Their presentation included a description of a standardized procedure which either eliminated or controlled satisfactorily the known variables capable of influencing the results.

However, if patch tests do not produce evidence of primary irritant effects, experimental studies of potential adverse actions of soaps upon skin should not be terminated at this point because patch testing is incapable of affording data requisite for a comprehensive evaluation of potentially harmful cutaneous influence of detergents.

The only adverse actions of soaps which are demonstrable by patch testing are the acute responses of the cutaneous vascular system and their sequelae, e.g., (a) dilatation of the minute blood vessels after a short latency indicated by a hyperemia or an erythema in the test area of skin, (b) local whealing or an elevation of the surface of the skin effected by congestion of the cutis which results from an increased permeability of the walls of capillaries and venules and engorgement of these vessels with blood, and (c) occasionally the production of vesicles or blisters. These phenomena do not denote a specific reactivity of the cutaneous vascular system to soaps. In general and in varying grades of severity, they are characteristic of all local irritants.

Sulzberger and Baer list four cardinal manifestations of "chronic cutaneous soap damage"; they are: (a) redness (hyperemia or erythema), (b) dryness, (c) scaling (desquamation), and (d) fissuring (excoriation). In addition to these simple and direct effects of soaps, Sulzberger and Baer state that dermatoses may be indications of abnormal effects of soaps, but they state that it is impossible to ascer-

* Reprinted from the Proceedings of the Scientific Section of the Toilet Goods Association, Inc., No. 11, May, 1949.

on SKIN

Adverse Effects
Exposure Tests

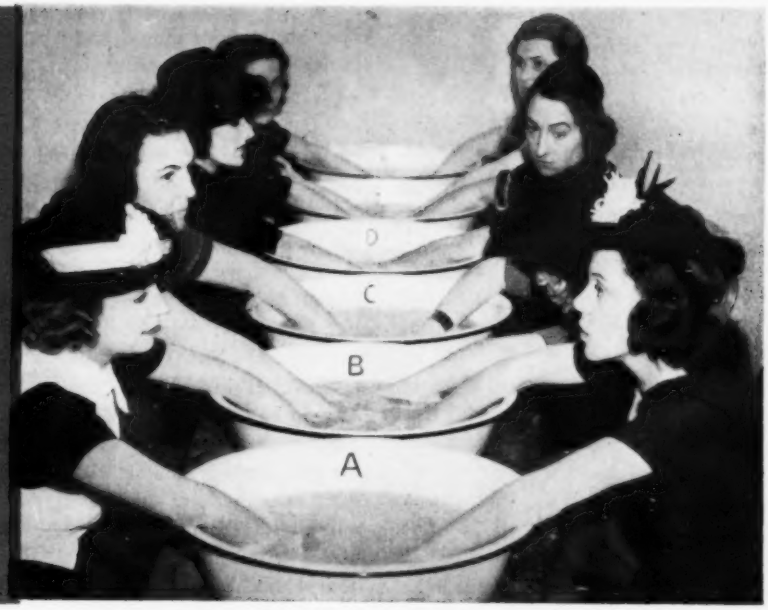


FIGURE 1—ARRANGEMENTS OF SUBJECTS AND OF PANS FOR COMPARATIVE TESTS OF TWO SOAPS BY THE REPEATED EXPOSURE TESTS

tain what part of these skin damages should be attributed to direct effects (primary irritant) and what part results from indirect effects of soaps.

The term "indirect effects" has reference to adverse actions which are dependent primarily upon the detergent capacities of soaps. Since only static applications of soap solutions are made to skin in patch testing, detergent properties of soaps do not contribute to the production of irritant effects.

The external surface of the human skin is covered by a mantle which, in different cutaneous areas at all times, and in the same areas at different times, varies in depth, chemical composition, and physical properties. It is composed of both endogenous components, e.g., the secretions and excretions of the skin, notably sebum and sweat, and exogenous substances acquired from external sources, e.g., the atmosphere, clothing, and other objects which contact the skin. The principal contributors to the cutaneous mantle are the sebaceous glands. Hence, the lipins of sebum constitute a substantial part of this coating of the skin. Water-soluble and fat-soluble fractions of the cutaneous mantle may be removed from the skin's surface either by the solvent or the emulsifying actions of soap solutions.

This cutaneous mantle functions as a protective barrier to the skin by virtue of its physical and chemical properties which determine penetrabilities of external substances into skin. Removal of this protective barrier by the detergent action of soaps increases the permeability of skin by potential irritants. Sources of these irritants may be (a) the soap, (b) the soil (including contaminant microorganisms) on the surface of the skin, and (c) a variety of materials in contact with the skin. Sollman states that a preliminary cleansing of the skin with either soap and water or fat solvents facilitates the intracutaneous penetration of local irritants. This preliminary washing also enhances the absorption of medicaments by skin. Cruikshank has observed that a single washing of human skin with soap and water during one minute removes 20 per cent of the total extractable fat from skin. The most efficient skin cleanser tested by this investigator extracted 50 per cent of the skin's fat. Subsequently, a period of 4 hours was required for the restoration of the skin fat to its precleansing level. The references cited above are representative of the numerous reports in physiological and clinical literature which present evidence that repeated washings of skin with detergent solutions, or even repeated exposures of skin to detergent solutions, may effect progressive alterations in the chemical structure of skin of which the end results are dermatoses.

In the authors' laboratory, several experimental procedures have been developed and utilized for purposes of determining chronic effects of soaps upon skins of both experimental animals and human subjects. In the animal experiments, sections of areas of skin to which repeated applications of soaps had been made for periods varying from 1 to 3 weeks were removed for histological examinations. Another method of testing was a modification of the procedure by Cullen and Taylor for assaying the irritant effects of chlorine antiseptics. Although results of experiments on animals made substantial contributions to our knowledge of adverse actions of some detergents, they were abandoned in favor of tests on human subjects, in which it was possible to simulate more closely the actual conditions of the everyday use of soaps.

Experiences in conducting tests on human subjects during a period of 14 years led to the development of several modifications of the original technic up until 1939 when standard procedures were finally adopted for

testing both toilet soaps and household soaps and nonsoap detergents. Since that time, this method of evaluating the normal effects and adverse actions by repeated exposures of skin to soap solutions has been utilized as a supplement to patch testing in determinations of the comparative irritant effects or mildness of two or more products.

Figure I illustrates the method of carrying out repeated exposures of the hands of 8 subjects to solutions of two soaps. Solutions of the soaps are placed in a series of 6 pans, arranged on a low table, on each side of which equal numbers of subjects are seated. For purposes of this discussion, the two soaps under test will be designated X and Y. One and one-half gallons of an aqueous solution of product X are placed in pans A, C. and E. Pans B, D, and F contain equivalent volumes of solutions of product Y.

From the illustration, it is evident that the first subject on the right has her left hand in the solution of product X and her right hand in the solution of product Y, whereas this order of immersion is reversed for the second subject on the right. It will be seen that each subject has exposed one of her hands to product X and the other to product Y. In other words, this procedure affords a comparison of cutaneous effects of products X and Y on the two hands of each subject. The photograph shows that equal numbers of right and left hands were immersed in solutions of the two products under test.

On each day of a test period, with the exception of Saturdays and Sundays, each subject participated in three immersions. The first immersion took place at approximately 9 A.M., the second was carried out 3 hours later, and the third was administered 3 hours after the second.

Throughout each period of immersion, the subject maintained an intermittent series of exposures of her hands to soap solutions for 1 minute and then to air above the sufaces of the solutions for 30 seconds. All immersions were supervised by a member of the laboratory staff who, by means of a stop-watch, timed the exposures to soap solutions and to air.

On Saturdays, only two immersions were carried out, one at 9 A.M. and the second at noon. No immersions were conducted on Sundays.

Throughout all test periods, applications of cosmetic or medicinal preparations to the subjects' hands were strictly prohibited. Since the majority of the subjects did no housework, prohibitions of the use of detergents in their homes other than those under test imposed no serious restrictions upon their activities outside the laboratory. In the few instances in which the performance of light housework was obligatory, the subjects received rubber gloves to obviate contacts of skins of their hands with soap products other than those under test. All subjects received cakes of one brand of soap for daily use in their baths and for other toilet purposes.

The hands of all subjects were examined twice on each day of the immersions and, at this time, gross signs of irritation were scored and recorded. The first examination was made in the morning before the first immersion of that day and the hands were examined for a second time in the afternoon immediately before the third immersion. Only one examination of the hands was carried out on Saturdays and this preceded the first immersion of the day.

In comparative tests of household soaps, equivalent amounts of a synthetic soil were added to all soap solutions in the proportion of 25 gm. to 1 gallon of solution. During all periods of the one-minute immersions, all subjects maintained uniform suspensions of this soil in the soap solution by gentle agitation with their hands.

The original formula for this soil was based upon results of chemical analyses of a large number of residues of meals remaining on dishes after a variety of meals. However, restrictions of some foods during the period of the war necessitated simplification of the original formula.

At the beginning of each test, the temperature of the soap solution was 45°C., but during the 20 minutes of the immersion, the temperature declined to levels of from 42 to 43°C.

In all series of experiments, one soap was selected as a standard for comparison with the other products under test. Comparative tests of adverse actions of all household soaps were made at varying levels of concentration in the solutions to which the subjects' hands were exposed. In the first series of experiments, the products were tested on a basis of equivalent concentrations ranging from 0.1 to 0.75 per cent. In a subsequent group of experiments, all solutions used in comparative tests contained equivalent concentrations of fatty acids. For the third series of comparisons, relative amounts of the different soaps used in preparation of the solutions were determined by their capacities to yield volumes of suds equivalent to those of the standard soap.

FROM about 85 groups of comparative experiments which have been completed within the past 11 years, a few representative series have been selected for presentation at this time in order to illustrate both the technic and the criteria adopted in the interpretation of results. Chart I is a summary of one series of comparative tests of 6 household soaps.

Soap A, which was a pure soap in the sense that it contained no builders, was selected as the standard with which the other 5 products were compared. Soap A was tested in a concentration of 0.25 per cent. Quantities of the other 5 soaps which were dissolved in water for preparation of test solutions were determined on a basis of their respective detergencies. This procedure was adopted in order to maintain uniform detergent values in all soap solutions.

This series of experiments was carried out during December, January, and February. Twenty subjects participated in these tests. Tests of soap A were made on all of these subjects, but each subject took part in experiments with only one of the other 5 products. Not all comparative tests of the standard and soaps B to F, inclusive, were carried out during the same period of time. Hence, for all of the series of tests, Saturdays and Sundays did not represent the same numbers of con-

secutive days in the test periods. In order to obviate errors arising from this cause, data have been reported in the chart only for those days in the test period on which cutaneous reactions had been recorded for all subjects on test.

In scoring gross evidence of irritation, progressive severities of cutaneous reactions were graded from O to + + + and assigned numerical values ranging from 0 to 3. This method of calculation of total scores has been described in an earlier publication. However, in the scoring of irritant effects in repeated exposure tests, excessive dryness and excoriation or fissuring of the skin were taken into consideration in the appraisal of irritant effects. Obviously, the same procedure was not applicable to results of patch tests because the method of patch testing does not dehydrate nor does it produce excoriation of skin.

Total scores for any day in the test periods represent the sums of the scores recorded in the morning examinations of the subjects' skins and the scores which were assigned to the evidences of irritant effects observed in the second examinations of the same day. Although the purpose of this and, also, of subsequent charts is the graphic demonstration of the cumulative effects upon skin of repeated exposures to soap solutions, in reviewing the data summarized in the graphs, it must be borne in mind that the scores recorded for consecutive days of test periods are not additive. On the contrary, a total score recorded for a particular day is independent of scores of preceding and following days. For example, the total score recorded for the tenth day is not the sum of scores of preceding 9 days plus the score for the tenth day. It is the numerical value assigned to gross evidences of cutaneous irritation on that day without regard to recordings for the first 9 days of the test period.

Cutaneous reactions rated as 1.0 (+) represent mild degrees of erythema over areas of dorsal surfaces of the fingers, hands, and wrists. As a general rule, these mild reactions were observed in the afternoon examinations of the subjects' hands, i.e., after the two preceding immersions of the day, but they disappeared prior to the inspection of hands on the following morning. Erythemas which were more marked and distributed over wider cutaneous areas than were the + reactions were graded as 2.0 (+ +). These 2.0 reactions persisted throughout the period intervening between an afternoon and the following morning examinations, although during this interval, their intensities and distributions may have declined to levels of 1.0 (+) reaction. Areas of skin which exhibited excessive dryness (desquamation) and fissuring (excoriation) in addition to + + erythemas were scored as 3.0 (+ + +) reactions. Also, some of these cases showed numerous punctate hemorrhages. Although a 3.0 (+ + +) reaction indicates the most severe degree of irritation, some of the average values as well as maximum scores are reported as 4.5 in Chart I (also in Chart II). This apparent discrepancy is attributable to the fact that the daily scores which are summarized as averages in the chart are the sums of scorings of evidences of irritation recorded during both morning and afternoon examinations. By this method of calculation, the maximum theoretical, daily score for a subject would be 6.0.

Test periods were extended until repeated daily examinations of the subjects' hands indicated that maximum cutaneous reactions had been obtained by repeated exposures of their hands and wrists to each of the 5 soaps which, for the purposes of this report, have been designated as B to F, inclusive. These periods varied from 26 to 33 with an average of 30 days. In all comparative series of experiments, tests of soap A were continued over equivalent numbers of consecutive days.

Maximum irritant actions observed on skins of hands exposed to 0.25 per cent solutions of soap A did not exceed daily, total scores of 1.0 throughout the test periods and these reactions were observed on only 10 per cent of 354 subject-days. Probably the most significant finding in respect to the actions of soap A on skin was

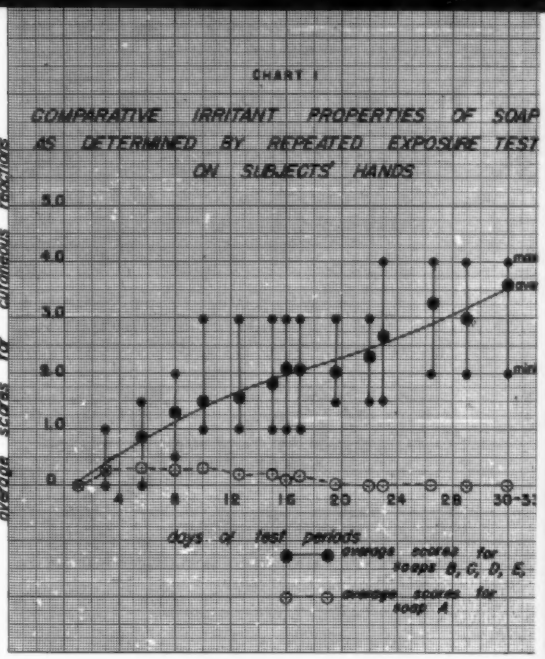


Chart I

the fact that none of these mild cutaneous reactions to solutions of this product persisted during the interval between an afternoon examination and the time of inspection of the hands on the following mornings. In the chart, the average curve for product A indicates a prompt development of not more than mild cutaneous reactions with a subsequent decline to 0 on the twentieth day of the test period. As a matter of fact, none of the subjects exhibited any cutaneous reactions to soap A after the seventeenth day of their test periods and 13 of the 20 subjects showed no reactions on any days of examinations of their hands.

The findings in all tests of soap A which were carried out in these series of experiments may be summarized briefly in the following five statements. In 90 per cent of the total subject-days reported in the chart, soap A produced no visible evidence of cutaneous reactions. Thirty-five per cent of the subjects did show mild erythemas on one or more days of the first 17 days of the test period. For any one subject, the total number of days upon which these mild erythemas were observed varied from 1 to 7 with an average of 5 days. All of these reactions were recorded in examinations of subjects' hands within the afternoon period between the second and third immersion. Finally, all of the reactions were transient and not cumulative.

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Cosmetic Chemists Meet, Discuss Synthetic Detergents

MORE than 225 members and guests attended the semi-annual meeting of the Society of Cosmetic Chemists held May 20 at the Biltmore Hotel, New York. The principal topics discussed dealt with the role of surface active agents in shampoos, deodorants, and cosmetics.

H. W. Zussman, Alrose Chemical Co., Providence, R. I., presented the first paper on "Shampoo Formulation." He reported that surface active agents, considered undesirable as shampoo ingredients because of their drying and defatting effects on the skin, might be utilized if properly formulated. The principles of adsorption and surface phenomena better explain the effects of surface active agents and may thus be applied to correct formulation. Better lubricating qualities are associated with agents with a long molecular structure; aromatics have an adverse effect on lubrication.

Soap shampoos, especially coconut oil soap shampoos, produce favorable results in soft water, they yield copious and viscous lather and rinse readily. These shampoos might also be used in hard water if combined with a sequestering agent to protect the lather and if they include a lime soap dispersant to retard the precipitation of calcium salts during dilution and rinsing.

The decrease in calcium concentration, by adding a sequestering agent to the shampoo, is possibly due to the breakdown of the micellar structure of the soap. Lime soap dispersants are effective because they retard the growth of calcium and magnesium salt crystals. Tabular data for the transmittance of .2 per cent K coconate and .02 per cent dispersion in 200 ppm $CaCO_3$ solution were presented as well as other data dealing with salt precipitation and softening agents.

In the course of the discussion following the paper, it was pointed out that even though a shampoo contains a sequestering agent, its effect is limited because of the increased dilution encountered in rinsing the hair.

The use of the "Nacconols" in controlling organisms which develop odors, and their function in reducing and eliminating odors of substances mixed with them were discussed in the paper, "The Deodorant Properties of an Alkyl Aryl Sodium Sulfonate," presented by Lawrence Flett, National Aniline Division, Allied Chemical & Dye Corp., New York.

The deodorizing action of "Nacconol NRSF" is due to the salt of lauryl amine, Mr. Flett stated. Tabular data on "Nacconols" vs. distilled water controls and sodium sulfate controls were presented for perfumes, aromatic materials and household odors. The bactericidal action of the "Nacconols" was also illustrated with charts indicating comparative data for the time required for a complete kill and time for partial check of the organisms.

In the application of the "Nacconols" in perfume preparation, care must be taken to select perfumes which are not deodorized.

In a paper "Surface Active Agents in the Cosmetic Industry," Foster D. Snell, Foster Dee Snell, Inc., New York, discussed the surface chemistry of phase boundaries as related to the use of surface active agents in producing stable dispersions.

Creams, toothpastes, shampoos, powders, etc. involve disperse systems where the stability and appearance of the product depend on the correct dispersion of the perfume in cream, perfume in powder etc. Because of interfacial tension, any dispersed system tends to separate. The more stable dispersions consist of an intimate mixture of very small drops of the component ingredients. The breakdown of a droplet to a smaller size is effected by a shearing force; this force is resisted by the interfacial tension. The shearing force required to breakdown a droplet depends on the droplet size; increasing as the size decreases. Consequently, large drops break up readily at the outset of agitation, and the rate of dispersion is high; i.e. shear overcomes the interfacial tension of the drops. As the size decreases, however, the shearing force required becomes greater and a state of dynamic equilibrium is reached, whereby shear cannot overcome the energy barrier and produces no further dispersion.

Surface active agents are used to stabilize systems and to reduce interfacial tension by orientation and concentration at the interfaces.

A general outline of synthetic detergents was presented by Anthony M. Schwartz, Harris Laboratories, Washington, D. C., in his paper "Cosmetic Functions of Synthetic Detergents." Detergents can be divided into three general groups: I. Solubilizing Agents, including anionic, cationic non-ionics, and ampholytic groups; II. Hydrophobic Agents, including ali-

The role of synthetic detergents in cosmetics is a growing one May 20 meeting of chemists is told

phatic and aromatic groups, and III. Linkages of the hydrophobic and hydrophylic groups, including ethers, esters and acid amines.

Fundamentals of detergency presented included the basic equation of detergency:
(Soil — Substrate) + Bath = Soil + Substrate + Bath and the factors affecting the course of detergency:

1. Nature of substrate
2. Nature of soil
3. Composition of bath
4. Physical condition of washing
5. Relative quantities of soil, substrate and bath.

The molecular mechanisms involved in detergency include:

1. Differential wetting of substrate by bath and soil
2. Electrostatic effect
3. Protective colloidal effect
4. Solubilization of soil
5. Emulsification of soil

In the course of the discussion, Mr. Schwartz pointed out that a surface active agent having a high wetting power is not necessarily a good skin detergent; as the skin, having a capillary effect requires more than wettability.

Inasmuch as the physics and chemistry of surface active agents are better known today; formulation no longer depends on a trial and error procedure but may be derived by a more direct scientific method which applies the fundamentals already recognized.

I. R. Hollenberg, Van Dyk & Co., Belleville, N. J., in his paper, "Practical Aspects of Emulsion Formation," pointed out that much of the literature dealing with emulsion formation is of a highly theoretical nature. Mr. Hollenberg submitted a list of publications dealing with a basic understanding of the theory of emulsification, and presented a general classification of cosmetic emulsions into structural groups and the formulation problems peculiar to each grouping.

A discussion of several experiments on the addition of perfuming agents to emulsions was presented by S. A. Karas, Helena Rubinstein, New York, in his paper "The Effect of Some Aromatic Chemicals and Essential Oils on the Stability of Cosmetic Emulsions."

The effect of aromatics and oils on five different types of emulsions was studied. As a result of the investigation, it was found that: 1) in most of the experiments, both aromatic chemicals and essential oils have a varied effect on all five types of emulsions, often shortening the life of the emulsions; 2) the rose character of the aromatics and essential oils is destructive to the triethanolamine emulsions and 3) hydroxycitronellal is most destructive of the oils to three of the five

(*Turn to Page 97*)

Soaps Vs. Synthetics For Hospital Laundering

By H. H. Slawson

A DISCUSSION of the relative merits of synthetic detergents versus soaps featured a group conference of hospital laundry managers during the 19th annual Tri-State Hospital Assembly, in Chicago, May 2 to 4. Representatives of three soap manufacturers were present to consider mutual operating problems with laundrymen. Members of the panel of soap experts included Edward Hahn, Cowles Detergent Co.; Byron Marsh, Armour & Co., and James Miller, Procter & Gamble Co., all of whom are trouble shooters for the Chicago branches of their respective companies. Arthur D. Harding, laundry manager for Children's Memorial Hospital, Chicago, presided as chairman of the conference, and Louis H. Hein, laundry manager for the Chicago Y.M.C.A., served as moderator.

Laundry managers, it was evident from the discussion, have been making serious efforts to determine if synthetic detergents have a place in laundry operations. No general agreement, however, seemed to prevail on their value in hospital laundries. Typical of the varied opinions expressed was the statement of one manager that he ran his plant with synthetics for eight months.

"I have tried them all," he said. "Some were good, some no good at all, so I went back to tallow soap. I found the synthetics satisfactory for removing soil from operating room linen, but they just don't get the grease out of dirty table linen."

In contrast, another manager said, "I, too, have used the synthetics and I did not have any of the trouble you folks are talking about." However, he was puzzled by the appearance of a green scum on his monel metal equipment, and it was finally suggested that he call in a soap service man to determine its origin and to dispose of the problem for him.

Mr. Hein, manager of the Chicago Y.M.C.A. laundries, reported that he had tried synthetics and found that they did not give the same results as soap on cotton goods. Bed sheets, he said, were smeared, streaked and spotted. But with woolen goods synthetics were very satisfactory. He found that synthetic detergents perform very well with any animal fiber. Mr. Hein pointed out that synthetics are still in their infancy. Sooner or later we'll get something that will answer." He quoted another laundry manager, who, had told him that "If soap goes up in price again, we'll go back to synthetics."

Several managers complained of the difficulty in getting blood stains out of linens, a problem Mr. Hahn, of Cowles Detergent Co., suggested might be caused by too high a starting water temperature. Some authorities, he said, claim that blood should be rinsed out so far as possible in cold water before beginning the machine process.

"What is the purpose of an alkaline soap builder?" first question presented to the panel, was handled by Mr. Hahn of Cowles, who observed that the job of washing cannot be accomplished by the soap alone, nor by the alkali alone. The alkaline builder, he explained,

(*Turn to Page 98*)

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TRADE NEWS

Viscount Leverhulme Dies in U. S.

WILLIAM HULME LEVER

VISCOUNT Leverhulme, 61, governor of Lever Brothers and Unilever, Ltd., London, died at St. Mary's Hospital, Minneapolis, May 26, after having been removed from a train there while he was en route from Banff, Canada to headquarters of Lever Brothers Co. at Cambridge, Mass. At the time of his death, Lord Leverhulme was head and major stockholder of Unilever of London, which controls 516 firms dealing in soaps, oils and margarine in 40 countries, of which Lever Brothers Co. is a subsidiary. When he was taken off the train for hospitalization, Lord Leverhulme was suffering from a bleeding ulcer. He was on a round-the-world business trip, and had recently visited the Far East. With him at the time of his death, in addition to members of his immediate family, was Charles Luckman, president of Lever Brothers Co., who flew from Boston to Minneapolis.

Lord Leverhulme, who managed one of the world's largest corporations, employing nearly 200,000 people in more than 40 countries, made his business headquarters at Unilever House, Blackfriars, London. He last visited the United States in 1946.

Viscountess Leverhulme and her daughter, Jill Lee-Morris, accompanied Lord Leverhulme on his final trip here.

Born in Bolton, England, March 25, 1888, Viscount Leverhulme was the son of the first Viscount Leverhulme (William Hesketh Lever) and Elizabeth Ellen Hulme. His father not only built up the global operation of Unilever, but introduced many of England's most progressive business and labor practices. His son expanded the organization established by the first Lord Leverhulme, and was recognized for his achievement in promoting the science of industrial management. A former president of the London Chamber of Commerce, he was instrumental in formation of the British Management Council in 1936.

He attended Eton and Trinity College, Cambridge. In 1927, Lord Leverhulme wrote a biography of his father, "Viscount Leverhulme, By His Son."

His first marriage to Marian Beatrice Smith of Manchester in 1927, of which there were a son and two daughters, was dissolved in 1936. The next year he married Winifred Agnes Bidston of Cheshire.

Lord Leverhulme was buried in the family burying ground at Port Sunlight, which was established as a model workman's village and plant near London by his father. Lord Leverhulme's heir is the Hon. Philip William Bryce Lever.

Werk Elects A. W. Cook

A. Werk Cook, formerly vice-president in charge of sales for M. Werk Co., Cincinnati, was recently elected president. A veteran of World War II, Mr. Cook represents the fourth generation of the soap-making family to become actively engaged in the company, which is one of Cincinnati's oldest soap manufacturers. The firm

A. WERK COOK

specializes in household soaps, its two major products being "Werx" and "Tag." Mr. Cook won the Bronze Star medal for action in the Philippines during the recent war, and holds the rank of Lieutenant Commander in the Naval Reserve.

Grove Buys Fitch Co.

The purchase of F. W. Fitch Co., Des Moines, Ia., makers of shampoos and related products for the care of the hair, by Grove Laboratories, Inc., St. Louis, pharmaceutical manufacturers, was announced recently. Fitch maintained plants at Des Moines, Los Angeles, Jackson, Miss., Bayonne, N. J. and Toronto, Canada. As a result of the purchase Grove becomes one of the largest independent toiletry and drug manufacturers in the U. S., with an annual sales volume of over $12,000,000.

Wrisley Shows Loss in '48

Allen B. Wrisley Co., Chicago, recently reported a net loss of $669,550 for 1948, which contrasts with a net profit of $258,407, or 83 cents each on

300,000 common stock shares for 1947. Net sales last year were $8,819,745, as compared with $12,090,965 for the previous year.

STANLEY J. HOLUBA

Holuba Forms Own Firm

Stanley J. Holuba, formerly of Essential Chemicals Co., Milwaukee, recently announced the organization of Stanson Chemicals, 112 Bostwick Ave., Jersey City, N. J., for the manufacture of household detergents, soap compounds, etc. The firm will also produce a line of industrial cleaners. Before joining Essential Chemicals, where he was in charge of research for industrial soap production, Mr. Holuba was with E. I. du Pont de Nemours & Co., Wilmington, for about six years. He did research in synthetic fats and oils with du Pont. Earlier, for 11 years, he was with the research, development and production department of Colgate-Palmolive-Peet Co., Jersey City, N. J., where he was engaged in formulating and spray drying of synthetic detergents, laundry soaps and general sanitary compounds.

Four Quit Iowa Soap

The resignation of four officials of Iowa Soap Co., Burlington, was announced recently. The four, who gave no explanation for leaving the company, were L. J. Evans, vice-president and general sales manager, who had been with the firm for 19 years; Fred Larabee, secretary and general counsel, who served 12 years; N. K. Modgelin, assistant sales manager and an employee for 10 years; and G. A. Smith, traffic manager, associated with the firm for 23 years. Homer Banta remains as president.

P&G Earnings Up

Consolidated net profits of $33,581,913 for the nine months ending Mar. 31, were reported recently by the Procter & Gamble Co., Cincinnati. The figure was computed after pricing merchandise and materials at cost. This amount is transferable to earned surplus since no change was made in the firm's reserve for inventory price decline, the statement added. The amount transferable for the period is equal to $5.22 a share.

Consolidated net profits for the same period last year were $66,270,466. Of this amount an appropriation of $34,000,000 was made as an addition to the reserve for inventory price decline. This left $32,270,455 transferable to earned surplus, equal to $5.01 a share.

AOCS Elects Mehelenbacher

V. C. Mehelenbacher, Swift & Co., Chicago, was elected president of the American Oil Chemists' Society at its 40th annual meeting in the Roosevelt Hotel, New Orleans, May 10, 11 and 12. Other officers elected were: vice-president, J. R. Mays, Jr., Barrow-Agee Laboratories, Inc., Memphis; secretary, H. L. Roschen, Swift & Co., Chicago; treasurer, J. J. Vollertsen, retired in 1946 from Armour & Co., Chicago; members-at-large, A. E. Bailey, Girdler Corp., Louisville, Ky.; T. H. Hopper, Southern Regional Research Laboratory, New Orleans; L. B. Parsons, Lever Bros. Co., Cambridge.

V. C. MEHELENBACHER

Diversey Buys Ga. Firm

Diversey Corp., Chicago, recently purchased all common stock of General Reduction Co., Macon, Ga., it was announced recently by H. W. Kochs, chairman of Diversey Corp. According to the announcement, Diversey Corp. will continue operating the company along present lines while installing additional equipment to broaden its scope. General Reduction Co. mines, processes and markets decolorizing and oil absorbent minerals.

H. W. KOCHS

Lukens Advances Wit

Samuel Wit, a sales engineer with the firm's machinery making division working out of the New York, Boston and Syracuse offices, was recently named district manager of sales in the Chicago office of Lukens Steel Co., Coatesville, Pa. He succeeds J. H. Faunce, Jr., Chicago manager, who assumes new duties July 1.

Join Lambert & Feasley

A. N. Labelle, formerly merchandise manager of the toilet goods division, Colgate-Palmolive-Peet Co., Jersey City, and George Hargrove, formerly sales manager of the Kansas City Division, McKesson & Robbins, Inc., recently joined Lambert & Feasley, Inc., New York.

1st Quarter Soap Sales Up

Domestic soap sales for the first quarter of 1949 show an increase over the fourth quarter of 1948, according to a report recently issued by the American Soap & Glycerine Producers,

New York. Census reports to the Association from 79 manufacturers show non-liquid soap sales amounting to 614,621,000 pounds. Non-liquid soap sales were 10 per cent above the fourth quarter of 1948, but were eight per cent less than for the first quarter of that year. Liquid soap sold during the first quarter of 1949 amounted to 1,331,000 gallons. Comparative figures indicate an increase of one per cent over the first quarter of 1948 but a drop of 11 per cent from the fourth quarter of 1948.

Sales of synthetic detergents in the first quarter of 1949 as reported by 27 companies total 154,871,000 pounds. In the fourth quarter of 1948, 17 companies reported a total of 120,196,000 pounds. In the first quarter of 1948, 14 companies reported a total of 69,034,000 pounds. Eighty-eight manufacturers participated in the sales census in the first quarter of this year. This is a 29 per cent increase over the 68 manufacturers who participated during each quarter of last year.

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F. T. C. Cites Larkin Soap

Larkin Soap Co., Teaneck, N. J., and its president, Earnest A. Harrell, recently agreed to abide by a Federal Trade Commission order to stop selling "Youse" hand soap powder in a container substantially larger in size and capacity than is required for packaging the quantity of the product contained. The company has also agreed to discontinue representing that the quantity of the soap powder in the package is greater than it actually is. According to the F.T.C., some cartons labeled "net weight 10 ounces" did not hold that amount of soap powder and the company's stipulation acknowledged this.

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Send Soap to France

To help relieve the shortage of soap in French hospitals, Wittenberg College students, recently held a campaign to gather 1,500 bars of general purpose soap to be sent to American Aid to France, New York. Part of the soap was collected by making a bar of soap the admission price for a dance at one of the college's functions. In the campaign, the students collected 4,100 bars of soap, which was shipped to France early this month.

F. E. Lacey, left, who was recently named manager of the technical products plant of Swift & Co. at Hammond, Ind., has been succeeded as sales manager of the industrial oil department by F. H. Beneker. Mr. Lacey continues as head of the industrial oil department. Mr. Beneker has been with the firm for 26 years.

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Pompa Leaves Watkins

J. P. Pompa, chief chemist of J. R. Watkins Co., Winona, Minn., is reported leaving this position July 1. He will operate a drug store in Blooming Prairie, Minn.

Specialty Soap Co. Moves

Specialty Soap & Chemical Co., makers of "Markay" home laundry soap and a dishwashing detergent, recently moved to new and larger quarters at 1300 E. Park Place, Milwaukee. The company was started in a two-car garage in 1945 by Joseph Kelly, a soap chemist.

AN OPEN LETTER TO THE EDITORS OF SOAP, IN ANSWER TO THE EDITORIAL IN OUR MAY ISSUE (PAGE 31)

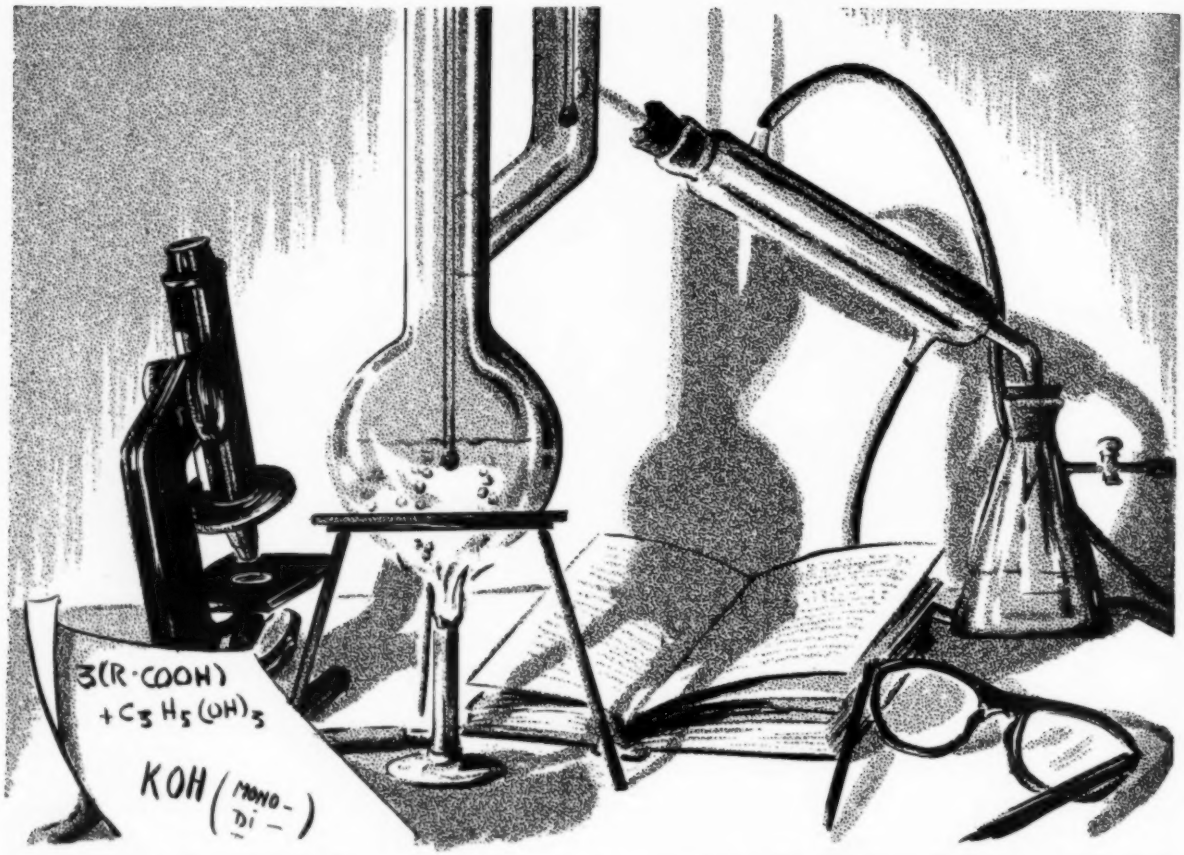
"It is always a pleasure to note the candid and courageous manner in which you editorialize the fat and oil raw material situation from time to time . . . .

"We definitely concur in your views with respect to recent fat prices—namely, that 'they have been subnormal for about three months' and that 'the overall world oil and fat picture at no time since the war's end has warranted a five-cent tallow market . . .' and, if these observations are sincerely made, we are unable to understand why you criticize recent efforts of domestic producers to secure an improvement in such prices. Inasmuch as U. S. government fats and oils experts have stated to us repeatedly within the past six months that prices of inedible tallow and grease have not reflected the true domestic supply and demand picture for these commodities, and since you state that the international supply and demand picture has at no time warranted a five-cent tallow market, we are wondering if the government admission and your statement do not tend to confirm a suspicion that domestic consumers of inedible animal fats can and do manipulate the price of these commodities.

"Be assured that, irrespective of your criticism, the work to secure improvement in the domestic inedible tallow and grease picture will go on and we feel that your views with respect to recent fat prices are of such significance that they ought to be placed promptly in the hands of all trade, government, and congressional circles.

"In closing, may we draw attention to your concluding statement which is: 'As for us, we would prefer not to be short (of soap fats) right now'; while we have no accurate information on which to agree to or dispute such an observation, nevertheless from a selfish viewpoint we of course hope that the implications of this remark are correct; however, if the suspected manipulations exist, there is no telling what might happen."

Very truly yours,
NATIONAL RENDERERS ASSOCIATION



SEARCH and RESEARCH

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Cottonseed Fatty Acids
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Stearine Pitch
Cottonseed Pitch
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Smead & Small, Inc.
Cleveland 15, Ohio

Braun-Knecht-Heimann Company
San Francisco 19, California

Braun Corp.
Los Angeles 21, California

Charles Albert Smith, Ltd.
Toronto 3, Canada

Thompson Hayward Chemical Co.
Kansas City 8, Mo. (and Branches)

James O. Meyers & Sons
Kenmore, Buffalo, New York

National Labs. Expand

The expansion of its sales staff and the advancement of six men to

M. H. GRIFFITH

executive positions, including the appointment of M. H. Griffith as general sales manager, were announced recently by National Laboratories, Inc., Toledo, O., now operating at double its former production capacity in new quarters at 4934 Lewis Ave. Mr. Griffith joined the firm in 1945 as district manager in the Cincinnati territory after having held a similar position with Procter & Gamble Co. National Laboratories makes "N-L Concentrate" for industrial and institutional cleaning purposes.

AASGP Sets Up Divisions

At a recent meeting of the board of directors of the Association of American Soap & Glycerine Producers, it was voted unanimously to immediately establish two divisions within the association. The two divisions are a specialty soap group, for manufacturers of liquid, paste, jelly, bar, chip, flakes, granulated and powdered soap specialties, and an industrial soap branch for makers of bar, chip, flake, granulated and powdered soaps sold in bulk. The by-laws of the Soap Association were amended to provide rules and regulations for the administration and guidance of these divisions and to insure representation on the board for the divisions.

A steering committee has been appointed for each division to serve as an executive committee until the divisions meet to elect their own chairmen and committeemen.

U.K. May Deration Soap

The possibility of complete decontrol or the easing of soap rationing in Great Britain in the near future is now being discussed, according to a late report from England. With an improvement in the availability of a number of brands and an easing in supply of soap raw materials, soap manufacturers are advocating complete "derationing." One soap maker, Bernard Green of Harry Green, Ltd., recently stated: "Some time ago the Ministry of Food began discussions with the trade for the gradual derationing of soap. Makers want complete derationing. The current rationing period began on May 22nd and lasts for eight weeks. Several firms feel that in the following period there will be either another let up or complete derationing. We have had no difficulty in obtaining raw materials."

Oronite Advances Two

The election of T. G. Hughes as executive vice-president and B. W. Anthony as director and secretary treasurer was announced recently by Oronite Chemical Co., chemical products subsidiary of Standard Oil Co. of California. Mr. Hughes has been with Standard since 1926, and with Oronite since its formation in 1943. Mr. Anthony was transferred from California Spray Chemical Corp., which he joined as chief accountant in 1943.

Translate Glycerine Work

A translation from German to English of the sections on glycerine and some glycerine derivatives from Beilstein's "Handbook of Organic Chemistry," 4th edition, was announced recently by the Glycerin Producers' Association, New York. A board of three translators and five editors from the staff of the GPA's research laboratories translated the work, which is now published as a 210-page book. It is thoroughly indexed and covers the literature to 1910 in the main work, and in the first and second supplements from 1910 to 1929, volumes 1-6. Copies are available at the G.P.A. offices, 295 Madison Ave., New York 17, for $2.50 per copy.

Raymond Read Dies

Raymond L. Read, 51, a chemist with Van Ameringen-Haebler, Inc., New York, died in Alexian Brothers Hospital, Elizabeth, N. J., after a long illness. He is survived by his wife, a married daughter, two sons, a sister and four brothers.

Ungerer Shifts Martin

The transfer to its Chicago office of Joseph R. Martin, for the past two years sales representative in the New York area for Ungerer and Co., New York, was announced recently. Mr. Martin has been with the firm for the past four years.

New "Lite" synthetic detergent is now being promoted by Lite Soap Co., Aurora, Ill. The product is featured for dishwashing, but its use for other purposes in the home and on dairy farms is also being stressed. Guy E. Brignall, general manager of the company, which has been in business for about 25 years, stated that approximately $50,000 will be spent this year promoting the product.

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Goodale CCDA Pres.

C. D. Goodale of Commercial Solvents Corp., Terre Haute, Ind., was recently elected president of the Commercial Chemical Development Association. Other officers elected are: vice-president, F. A. Soderberg, General Dyestuff Corp., New York; treasurer, C. W. Walton, Minnesota Mining & Manufacturing Co., St. Paul; and executive secretary, G. O. Crakwall, Charles Pfizer & Co., Brooklyn.

New Bersworth Sequestrant

A new sequestering agent known as "Versene Fe-3," was announced recently by Bersworth Chemical Co., Framingham, Mass. The new sequestrant is claimed to be particularly effective in sequestering the trivalent iron that exists in water and other aqueous solutions. It is also said to have considerable sequestering action on calcium and magnesium. The sequestering power of "Versene Fe-3," and the related product "Versene," varies with the pH of the solution. "Versene Fe-3" is said to be about twice as effective as regular "Versene" in sequestering trivalent iron at pH 12 and is about three times as effective at pH 7. "Versene Fe-3" is only slightly less effective than regular "Versene" in sequestering calcium, magnesium and other alkaline earth ions.

Enlarges Phosphate Plant

The enlargement of its facilities for the production of tetrasodium pyrophosphate was announced recently by Monsanto Chemical Co., St. Louis. At the same time it was announced that the recently completed additional furnace capacity for the production of elemental phosphorus is in full operation at the company's Monsanto, Tenn., plant, the largest producer of the material in the world. Phosphorus is converted into phosphoric acid for use in the manufacture of tetrasodium pyrophosphate.

Textile Colorists Golf

The annual outing of the New York section of the American Association of Textile Chemists and Colorists was held June 17, at North Jersey Country Club, Paterson, N. J.

Werner on N.B.B.B. Board

William G. Werner, manager of the public relations division of Procter & Gamble Co., Cincinnati, recently was elected a director of the National Better Business Bureau. The board consists of 20 representatives of publications, banks, advertising agencies and manufacturers throughout the country.

WILLIAM G. WERNER

He is president of the U. S. Trademark Association, chairman of the glycerine publicity committee of the Association of American Soap and Glycerine Manufacturers of America, member of the National Cotton Council Advisory Committee and director of the Brand Names Foundation and Public Relations Society of America.

New Detrex Cleaner

Detrex Corp., Detroit, recently announced a new combination metal cleaning and phosphate coating material for use on steel and other ferrous metals. The new material, known as "Detrex 79," is a yellow, non-corrosive cleaning compound in dust free powder form.

Edward S. Rogers Dies

Edward S. Rogers, chairman of the board of Sterling Drug Co., New York, chairman of Brand Names Foundation, of which he was regarded as the principal sponsor, died at his home in Greenwich, Conn., May 22. He was 74 years old. A leading authority on trademark law, he was counsel to Sterling and its corporate predecessors for nearly 50 years.

Reprints Thomssen Article

Proctor & Schwartz, Inc., Philadelphia, recently reprinted and distributed in the form of a four page folder a recent article on soap drying equipment written by Dr. E. G. Thomssen in his column "Production Clinic," which appears in *Soap & Sanitary Chemicals*. Copies of the reprint are available by writing the company at Seventh Street and Tabor Road, Philadelphia 20, Pa.

Anatara Names Conrad

John P. Conrad was recently named contact representative for all government agencies by Antara Products, General Aniline & Film Corp., New York. He has been with the firm since 1946.

Martin Joins Diamond

George J. Martin, after serving for many years in the leather industry, was recently appointed as special sales staff assistant with Diamond Alkali Co., Cleveland, where he will work under the direction of Charles E. Grant, manager of chromium chemical sales.

MM&R Shifts Day

Henry L. Day, previously attached to the firm's New York office, was recently named sales representative in the territory of Missouri, Nebraska, Kansas and Colorado by Magnus, Mabee & Reynard, Inc., New York. Before joining MM&R, Mr. Day was with Pan-American Shell Corp. in Mobile, Ala., where he was plant manager.

Soapers On Brands Board

Roy W. Peet, secretary-manager of the Association of American Soap & Glycerine Producers, and William G. Werner, director of public relations, Procter & Gamble Co., were recently named to the board of directors of Brand Names Foundation at a meeting of representatives of the Foundation's member organizations on the third annual Brand Names Day, held at the Waldorf-Astoria, New York, recently. Also elected to the board was George S. McMillan, vice-president of Bristol-Myers Co., New York.

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Kranich standard soaps are manufactured and produced entirely in our own factory. All soaps are manufactured from fatty acids distilled and vegetable oils refined by us. All alkalies are dissolved and settled to remove impurities. All soaps are HEAVY METAL free (new technique).

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40%, 30%, 20% Coconut Oil

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Powdered Coconut Oil 98%
(For Detergent Compounding)

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54 Richards Street Brooklyn 31, N. Y.

KRANICH SOAPS

Soap Prices Cut

A reduction of approximately four per cent in the price of "Swan" soap and a two per cent per pound drop in the price of "Spry" shortening were announced recently by Lever Brothers Co., Cambridge, Mass. The price cut was the third this year on both products, according to the company. Procter & Gamble Co., Cincinnati, at about the same time, reduced the prices of "Ivory" soap by about one--half cent on the large cake and one-third of a cent on the medium size. The price of "Crisco" shortening was also lowered by two cents a pound. The reductions reflect "current manufacturing costs," it was stated by P&G, pointing out that "Crisco" now costs 30 per cent less than it did last July.

Elliott Schimmel Rep.

Ralph J. Elliott of Detroit was recently appointed representative in that area for Schimmel & Co., New York. He is the son of the founder of Elliott Sales Service. On a recent visit to New York, Mr. Elliott was given a thorough familiarization course on Schimmel products and services.

Detergent Cuts Dusting

A light amber liquid synthetic detergent ("Sterox CD"), for preventing dusting of powdered and dry detergent mixes, was announced recently by Monsanto Chemical Co., St. Louis. The product, completely active and non-ionic, is said to add to the efficiency of the finished mix. It may also be used in mechanical dish washing compounds because of its low sudsing tendencies and good detergency, according to the maker.

Change "Soilax" Formula

A new chemical formula for the household detergent, "Soilax" was announced recently by Economics Laboratory, St. Paul. A new ingredient, "polasol" has been added, which is said to force the breakdown of dirt concentrates and hold them in solution preventing redeposition of soil. Besides changing the formulation of the product, the package has been redesigned to include a metal pour spout—believed to be the first time this has been done with a packaged detergent. Another feature of the new "Soilax" is development of a method for the user to determine the proper amount of cleaning material to be used. When the water turns green, the proper mixture is achieved; if too much powder has been added, the water becomes yellow.

Another recent entry in the growing field of home permanent wave sets has been introduced by Lever's Harriet Hubbard Ayer division, New York.

Edlund in Rudge Post

Roscoe C. Edlund, from 1927 until 1947 manager of the Association of American Soap & Glycerine Producers, Inc., New York, was recently named plans board chairman of Fred Rudge, Inc., New York, of which company he is also a director.

P & G Employee Dividends

Employees of the Long Beach, Calif., plant of Procter & Gamble Co., Cincinnati, recently were paid $42,800 in profit-sharing dividends. Payments were made to 417 employees, who, at the end of 1948, owned 5,000 shares of the company's common stock, having a market value of $290,000. Total dividends paid to Procter & Gamble employees in the United States and Canada in 1948 amounted to more than $1,250,000.

Changes at A. Gross

M. J. McCarthy, vice-president and treasurer, who formerly directed sales, now is in charge of purchases, as the result of reorganization of the executive personnel of A. Gross & Co., New York, manufacturers of stearic acid, red oil, glycerine and fatty acids, it was announced recently. Eugene W. Adams, vice-president, who had been Mr. McCarthy's assistant, now is in charge of sales under the new setup.

Houghton Adds Department

The establishment of a new product department was announced recently by E. F. Houghton & Co., Philadelphia. Dr. H. B. Walker, formerly assistant to Dr. R. H. Patch, vice-president in charge of operations, for the past two years, is manager of the new department. It will "facilitate the handling and evaluating of newly developed products, and bring about closer liaison between research, production and sales staffs," according to the company announcement.

There's a RIGHT *way!*

There's a *RIGHT* approach to a soap perfuming problem, too . . . For *EFFECTIVE* perfuming, depend on the creative skill and technical know-how of the perfume chemists of van Ameringen-Haebler . . . a competent staff whose skill, knowledge and experience is unmatched in the field.

VAN AMERINGEN-HAEBLER, INC

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manufacturers and creators of the finest perfume materials

New Soaps, Cleaning Materials Displayed at Midwest Hotel Show

SOAP and cleaning compound manufacturers exhibiting at the Midwest Hotel Show, held in Chicago, recently, included Antiseptol Co., Chicago; Economics Laboratory, Inc., St. Paul, Minn.; Lever Brothers Co., Cambridge, Mass. In addition, floor cleaning and polishing machines, air deodorizers and other sanitary chemical specialties were shown.

Antiseptol Co., exhibiting at a trade show for the first time in a number of years, showed its new "Soap No. 44," a potash soap for institutional and other dishwashing. For dispensing the soap, the company exhibited a large dispenser for maintaining a reservoir of concentrated soap solution. The container is fitted with a valve by which the soap is poured into the sink for dishwashing. Antiseptol also featured another new product: "Marvarok," a mildly alkaline soapless cleaner with high wetting power. The material is in cake form and dissolves layer by layer, feeding automatically from a tank into the dish water without changing in chemical composition. Liquid toilet soaps with dispensers, green soap for floor maintenance and a number of other products in the company's line were shown. E. E. McDow, president of the company, and Ralph C. Peterson, sales manager, were in charge of the exhibit.

"Pan Dandy," a recently developed detergent for washing pots and pans, was one of the highlights of the Economics Laboratory display booth. Also shown was an electronic detergent dispenser for use in dishwashing machines. Two standard cleaners made by the firm, "Soilax" and "Super Soilax" and "Microklene," a germicidal hand dishwashing compound were also prominently shown at the booth, which was manned by R. A. Harlan, Chicago division manager, Thomas Canene and John F. Eilason, sales engineers of the Chicago office.

Lever Brothers Co., Cambridge, Mass., promoted their "Lux" toilet soap in individually designed wrappers for hotel use. In charge was C. W. Wooldredge, general manager, hotel service division, from Cambridge headquarters. He was assisted by seven field men.

"Ozium," a new glycol-type air freshener for control of air borne bacteria, was shown by Albert Pick & Co., Chicago institutional outfitters. Manufactured by Woodlets, Inc., Portland, Pa., the product's formula includes propylene and triethylene glycols. The material is dispensed from a miniature aerosol dispenser, which can be refilled with capsules. Twelve capsules are sold with each dispenser.

Hild Floor Machine Co., Chicago, displayed a new 14-inch model of their noiseless rug cleaning machine, and also other models of floor scrubbing and polishing machines, along with rug and upholstery shampoos, "Dog-Tex" spotting compound and other items. Demonstrations were supervised by Mrs. Hazel I. Hild, a veteran of many trade shows.

System Products Co., Chicago, showed their line of floor maintenance machines, "Kleen-Rite" rug shampoos and other sanitary chemicals. B. J. Ernstein, head of the company, was in charge, assisted by Mrs. Ernstein and members of the field sales staff.

Detrex Widens Name Use

Detrex Corp., Detroit, has just announced that it is extending the use of its registered trade name, "Detrex," for identifying alkali cleaning compounds, strippers, emulsion cleaners and wet spray booth materials manufactured by the firm. The registered trade name, "Triad," is now reserved exclusively for use in identifying the company's chlorinated hydrocarbon solvents for vapor degreasing and oil extraction.

Lever-Unions Sign

Lever Brothers Co., Cambridge, Mass., negotiated and signed new contracts with five unions representing more than 3,000 hourly employees, according to a recent announcement by William R. Veale, vice-president and general manager of the company. The same basic wage structure (averaging $1.58 an hour), company-paid group hospitalization for employees and their families and an added paid holiday are the major provisions of the new uniform contracts. The one-year contracts have been ratified by AFL International Chemical Workers' locals of Lever's soap and shortening manufacturing plants at Cambridge, Mass.; Edgewater, N. J.; Baltimore, and St. Louis, and by the CIO United Gas, Coke and Chemical Workers' Union at the Hammond, Ind., plant.

Premium Show Sept. 12-16

The Premium Advertising Association of America, Inc. and the New York Premium Club will sponsor the annual premiums and advertising specialties exposition to be held at the Seventy-first Regiment Armory, New York, Sept. 12-16.

SAACI '49 Golf Dates

Announcement of its 1949 schedule of golf outings was made recently by the Salesmen's Association of the American Chemical Industry. The first affair was held Thursday, June 9, at Bonnie Briar Country Club, Larchmont, N. Y.; the second will take place Tuesday, July 19, at Montclair (N. J.) Golf Club; the August outing will be held Tuesday, the 16th, at Baltusrol Country Club, Springfield, N. J., and the final outing of the year will be held Thursday, September 15th, at Huntington Crescent Country Club, Huntington, L. I., N. Y.

Dr. Sidney B. Kirkpatrick, editor of *Chemical Engineering*, spoke on "Putting Words to Work" at the May 12th luncheon meeting of the S.A.A.C.I. at the Hotel Roosevelt, New York.

Givaudan Flavors Formed

The formation of Givaudan Flavors, Inc., New York, a new corporation devoted exclusively to the production and sales of flavors, was announced recently by Givaudan-Delawanna, Inc., New York. Paul Adams, who has been active in the flavor industry in America and Switzerland for 18 years, has been named manager of the new Givaudan affiliate, which makes its headquarters at 330 W. 42nd St., New York.

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YOU'LL find a difference in ordinary linalool and in LINALOOL by FRITZSCHE. You'll find that difference in the latter's softer, smoother fragrance and its complete freedom from undesirable by-notes. To effect these advantages, we employ a unique and highly refined process of manufacture—rigidly controlled from beginning to end. The final result—LINALOOL by FRITZSCHE—is a material of extreme purity and finest odor. We are sure you will properly evaluate this material once you have examined its characteristic and very delightful lily of the valley fragrance and we venture to suggest that you may want to try it in some of your finer toilet soap products. If you do, please address us on your letterhead for a FREE test sample.

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BRANCH OFFICES and *STOCKS: Atlanta, Georgia, *Boston, Massachusetts, *Chicago, Illinois, Cincinnati, Ohio, Cleveland, Ohio, Dallas, Texas, Detroit, Michigan, *Los Angeles, California, Philadelphia, Pennsylvania, San Francisco, California, *St. Louis, Missouri, *Toronto, Canada and *Mexico, D. F. FACTORY: Clifton, N. J.

RAW MATERIAL MARKETS

As of June 2, 1949

THE fat and oil market, with some exceptions, has been pretty well stabilized at the level of a month ago. Tallow at 5⅞ cents a pound is unchanged from this date in May, while coconut oil is a half-cent higher than a month ago, when it was selling for 15 cents a pound, Pacific Coast basis. Copra, on the other hand, is bringing $10 a ton less than it was last month, the current price being listed as $175 a ton, delivered on the Pacific Coast.

All other oils are down from their May levels. Declines were registered by cottonseed oil, which dropped from 11¾ cents a pound in May to the current figure of 10½ cents. Soybean at 10 cents is three-fourths of a cent under the price on this date in May. Corn oil is now listed at 11½ cents a pound, as compared with 11¾ cents on May 2. Peanut oil fell from 13¼ cents a pound to 12 cents.

Any immediate relief for fats and oils producers from the soap industry seems remote. According to a recent survey in the New York *Times*, the increased buying of such key chemicals as soda ash and caustic soda that precedes by about 30 days sizable advances in production is absent. A further omen of what may be expected in the way of future pricing in fats and oils is the prediction that the 1949 production of fats and oils will be about the same or possibly slightly higher than the large 1948 crop. The increasing consumption of synthetic detergents for household cleaning purposes also indicates that demand for fats and oils by soap makers may ease further.

A recent report from the U. S. Department of Agriculture states that prices of fats and oils in April of this year were 40 per cent lower than the January, 1948 peak. The Department predicted that large domestic production of fats and oils and a decline in consumer income will "tend to keep prices low in relation to the last two years." It was indicated, however, that price supports for this year's crops of soybeans, peanuts, and flaxseed, plus foreign demand, will probably moderate further declines in the general level of fat and oil prices.

Animal fat output for the remainder of the year is likely to be larger than in 1948, according to the Department. Production of federally inspected lard in the first quarter of 1949 was 529 million pounds, up 16 per cent from a year ago.

World production of tallow and grease in 1948 amounted to 2,050,700 short tons, the Department of Agriculture stated recently. The output was approximately the same as in 1947, but more than 30 per cent greater than in prewar years. Western Hemisphere production at 1,493,600 tons, was two per cent under the previous year's total, but 79 per cent above prewar averages. Eastern Hemisphere production, 557,100 tons, was slightly above 1947 output, but 23 per cent below prewar.

Word from the Philippines indicates that copra exports from the Islands in 1949 will not exceed 700,000 metric tons, which includes a carry-over of 150,000 tons. In 1947, the record post-war year, copra exports from the Philippines amounted to 1,016,000 metric tons. In 1948 exports declined to 641,862 tons. Some of the drop in exports is still attributed to damage from the typhoon of more than a year ago. Another factor is desiccated coconut production, which now has first call on fresh coconuts. Desiccating factories pay a slight premium for nuts and their mounting production is almost double prewar years. Insect damage is also having an effect on copra production.

Exports of copra from the Philippines during April amounted to 40,717 long tons, making the total for the January to April period 145,300 tons, it was announced recently by the Office of Foreign Agricultural Relations, U.S.D.A. Shipments for the first four months of this year are 44 per cent less than for the comparable period in 1948, and compare with 357,000 tons exported from the Islands in the Jan.-Apr., period in 1947.

Coconut oil exports from the Philippines amounted to 2,982 tons in April, down from the previous month's total. The four months' figure for 1949 was slightly higher than in the comparable 1948 period.

Indonesia exported 27,000 long tons of copra in April, which was only one per cent less than in the previous month, and 47 per cent more than the 18,800 tons shipped in April, 1948. Copra production was at its highest level for the year during April, when 37,000 tons were turned out. In the preceding 16 months, only Dec., 1948, had a larger production, when 38,000 tons of copra were produced. Jan.-April, 1949, production amounted to nearly 132,000 tons, and stocks on Apr. 30 were 42,800 tons.

A request that President Dutra of Brazil veto a bill that has passed the Brazilian Senate and sets an official price for carnauba wax was cabled recently by large wax users in the United States. The price set in the bill is competitively unrealistic, according to the users, who ask that the wax be sold on a free market basis, particularly since good substitutes are available.

Although the market for essential oils and aromatic materials has not been characterized by marked change

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Antara Products
General Aniline & Film Corp.

Antara Extra

An Antara Products Publication

Detergents
Emulsifiers
Wetting Agents
Dispersants
Carbonyl Iron Powder

444 MADISON AVENUE NEW YORK 22, N. Y. JUNE, 1949

Antaron "L-520" Ideal for Hard Surface Spray Washing

Antaron "L-520" – a new addition to Antara Products Antaron line – was recently announced as one of the outstanding detergents for hard surface spray cleaning.

This product is a low-foaming alkyl amide sulfonate which can, if necessary, be built to give superior results in hard surface spray cleaning at elevated temperatures. Its wetting ability and detergency are excellent.

The low-foaming properties of Antaron "L-520" overcome the defects of products whose abundance of foam prevents good detergency. Antaron "L-520" plus hard water without water softening polyphosphates leaves surfaces which are film free. This elimination of a water softening polyphosphate makes it possible to compound products at a lower overall cost which will be better detergents.

Antara Products has a specially-formulated product, Antaron "L-511", which is built specifically for automatic dishwashing. Full information on Antaron "L-520" or Antaron "L-511", the special dishwashing machine detergent, may be had by writing Antara Products.

Investigate Antaron "L-511" for Machine Dishwashing

Simple Mixing Makes Possible Incorporation of Liquid Non-Ionics With Suitable Solid Products

Now through a development of the Central Research Laboratory of General Aniline & Film Corporation it is possible to incorporate liquid non-ionic detergents of the Antarox "A" series with inorganic powders through a simple mixing process at a low cost.

It has been known for some time that liquid non-ionics, in combination with certain inorganic builders, can be spray or drum dried to yield non-sneezing products of desirable physical form and highest quality.

This new discovery of General Aniline & Film Corporation enables compounders of powdered soap and detergent products who lack the expensive spray or drum drying equipment to use these versatile, efficient, and economical liquid non-ionic detergents. It means that hundreds of small outfits *now* can incorporate these detergents with their own powdered products and put more efficient cleaners on the market at a lower cost.

Write Antara Products today for more information.

Add Two New Products To Antarox "A" Line

Antarox "A-400" and "A-480" have just been added to Antara Products' Antarox line. Both of these products are aromatic polyethylene glycol ethers. A unique characteristic of these detergents is that they are practically odorless. Their foaming qualities make them particularly valuable for the demands made upon some detergents.

Antarox "A-400" and "A-480", because of their ether structure, are extremely stable in the presence of acids, alkalis, and electrolytes. Because they do not ionize, they will not form insoluble compounds in hard water. They do not easily decompose or separate and will withstand wide variations in temperature. In addition to all these characteristics, their physical and chemical properties will not change over long storage periods. Information on Antarox "A-400" and "A-480" may be had by writing Antara Products.

Prices Reduced on Antarox "A" Series

Antara Products, General Aniline & Film Corporation announced last month a price reduction of three cents a pound on the Antarox "A" series. These products are non-ionic synthetic detergents of the aromatic polyglycol ether family and are excellent detergents, wetting agents, dispersing agents, and emulsifying agents with many and varied applications throughout industry.

FROM RESEARCH TO REALITY
GA&F
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GENERAL ANILINE & FILM CORPORATION
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BIDS AND AWARDS

VA Cleanser Opening

Bids on 180,032 pounds of scouring powder in one pound containers, 11,500 pounds of grit cake soap in 10-ounce cakes and 489,500 pounds of soap powder in 100-pound containers were asked for in a recent opening by the Veterans Administration, Washington, D. C.

DDT Spray Bids

In a recent opening for miscellaneous supplies by the U. S. Department of Agriculture, Washington, D. C., the following bids were received on 96,000 gallons of DDT insecticide spray; California Spray - Chemical Corp., Richmond, Calif., items 1, 2 and 3, 47.74 cents a gallon; Eston Chemicals, Los Angeles, items 1, 2 and 3, 56.3 cents; Imperial Products Co., Philadelphia, items 1, 2 and 3, $1.59; Leffingwell Co., Whittier, Calif., items 1, 2 and 3, 53 cents; Michigan Chemical Corp., St. Louis, Mich., items 1, 2 and 3, 78 cents; Pacific Chemical Co., American Marietta Co., Los Angeles, 55.8 cents; Pacific Supply Cooperative, Portland, Oreg., 46.72, all items; Pennsylvania Salt Manufacturing Co. of Washington, Portland, item 1, 41.5 cents, 2, 42.5 cents, 3, 42 cents; Shell Chemical Corp., San Francisco, 66.2 cents, all items; Sherwin-Williams Co., Washington, item 1, 64.5, 2, 65.6 cents and 3, 65.05 cents; Stepon Chemical Co., Chicago, 73.8 cents, all items; Van Watters & Rogers, Portland, Oreg., item 1, 45.83 cents, 2, 46.27 cents and 3, 46.05 cents; Crop King Co., Yakima, Wash., item 1, 54 cents; 2, 55.5 cents, 3, 55.75 cents; Kolker Chemical Works, Newark, N. J., 78.9 cents, all items.

Laundry Soap Bids

Bids on 75,000 pounds of laundry soap in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., were received from the following: Procter & Gamble Co., Cincinnati, item 2, 5.23 cents a pound, 3, 5.45 cents a pound, 4, 6.37 cents, 5, 5.95 cents, 6, 8.55 cents; Armour & Co., Babbitt, N. J., item 1, 5.17 cents, 2, 5.40 cents, 3, 6.22 cents; Kamen Soap Products Co., Barberton, O., item 1, 5.39 cents; Pitt Chemical & Sanitary Supply Co., Washington, D. C., item 1, 6.5 cents, 2, six cents; 3, 6.66 cents; Tennessee Soap Co., Memphis, items 4 and 5, seven cents; Pioneer Soap Co., San Francisco, item 6, 6.7 cents; Swift & Co., Chicago, item 2, six cents, 3, 6.2 cents; 4 and 5, 7.5 cents, 6, 8.6 cents; Colgate - Palmolive - Peet Co., Jersey City, N. J., item 2, 5.727 cents, 3, 5.645 cents, 4, 6.485 cents, 5, 6.133 cents; Peck's Products Co., St. Louis, items 3 and 4, 6.5 cents, 5, six cents, 6, 10 cents; Fischer Industries, Cincinnati, item 1, 7.49 cents; Unity Sanitary Supply Co., New York, item 1, 10 cents; Gillam Soap Works, Fort Worth, Tex., item 1, 3.4 cents, 3, 4.8 cents, 4, 6.3 cents, 5, 5.8 cents.

P.O. Cleaner Bidders

Included in the list of bidders on 1,100 gallons of cleaner and renovator in a recent opening by the Post Office Department, Washington, D. C., were the following: Bri-Test, Inc., New York, $1.10 per gallon; R. M. Hollingshead Corp., Camden, N. J., 84 cents; Lasting Products Co., Baltimore, 98 cents; Sherwin-Williams Co., Cleveland, 96 cents; C. H. Tennant Co., Minneapolis, $1.12; Berl Chemical Co., New York, $1.10; Baltimore Paint & Color Works, Baltimore, 94 cents and Trio Chemical Works, Brooklyn, $1.12.

Floor Wax Bids

Bids on 3,000 gallons of floor wax in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., were received from: ChesWhite Co., Baltimore, 64 cents per gallon; Penetone Co., Tenafly, N. J., 63 cents; Trio Chemical Works, Brooklyn, 53 cents; Wisconsin Chemical Products Co., Milwaukee, 55 cents Marjo Products Co., Chicago, $1.05; H. Bieler Penn Convoy, Philadelphia, $1.59; Uncle Sam Chemical Co., New York, 59 cents; International Metal Polish Co., Indianapolis, $1.18; Davies Young Soap Co., Dayton, $1.00; Crown Supply Co., Washington, D. C., $1.10; Twin City Shellac Co., Brooklyn, 80 cents; Windsor Wax Co., Hoboken, N. J., 57 cents; R. M. Hollingshead Corp., Camden, N. J., 58 cents; Buckingham Wax Co., Long Island City, N. Y., 63.8 cents; Boyle Midway, Inc., New York, $1.00; Oil Specialties & Refining Co., Brooklyn, 71.2 cents.

P.O. Scouring Powder Bids

In a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C., the following bids were received on 49,000 pounds of scouring powder: Peck's Products Co., St. Louis, item 1, 20 cents a pound; Fischer Industries, Cincinnati, item 1, 57.5 cents; Mann Detergent & Chemical Co., Albuquerque, N. M., item 1, 9.6 cents, 2, 13.8 cents, 3, 12.6 cents, 4, 13.1 cents, 5, 11.8 cents, 6, 12.6 cents; Marjo Products Co., Chicago, items 2-6, four cents; Safford Co., Landrum, S. C., item 1, 3.35 cents, 4, 6.6236 cents; Unity Sanitary Supply Co., New York, item 1, 7.5 cents; Imperial Products Co., Philadelphia, item 1, 3.65 cents, 2, 4.36 cents, 3, 5.19 cents, 4, 5.19 cents, 5, 5.85 cents, 6, 7.65 cents; Chemical Manufacturing & Distributing Co., Easton, Pa., item 1, 4.7 cents; 2, 4.5 cents, 3, 5.3 cents, 4, 5.5 cents, 5, 6.3 cents, 6, 7.1 cents; Atwood Manufacturing Co., Riverton, N. J., item 1, eight cents; Johnson Consumer Industries, Maspeth, N. Y., item 1, 3.67 cents.

P.O. Paste Soap Bids

The following bids were received on 30,000 pounds of paste soap in a recent opening for miscellaneous supplies by the Post Office Department, Washington, D. C.; E. F. Drew & Co., Boonton, N. J., six cents a pound; Curley Co., Philadelphia, 9.74 cents; Crystal Soap & Chemical Co., Philadelphia, 6.99 cents; Harley Soap Co., Philadelphia 5.95 cents; Wilco Co., Los Angeles, 10.345 cents; Unity Sanitary Supply Co., New York, 14.9

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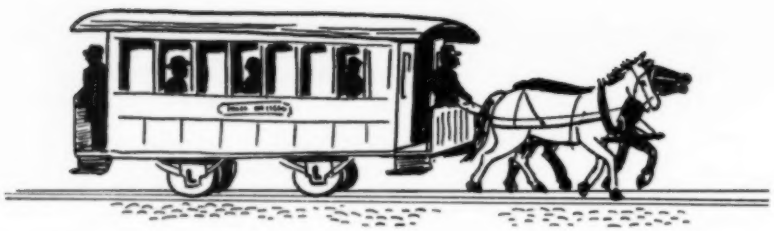

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Cottonseed	Soybean

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Oleo Stearine	Tallow
Lard	Lanolin

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NEW TRADE MARKS

THE following trade-marks were published in the May issues of the *Official Gazette* of the United States Patent office in compliance with Section 6 of the Act of February 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Moth-O-Blitz—This for insecticide. Filed Aug. 12, 1946 by Industrial Management Corp., Los Angeles. Claims use since May 16, 1946.

Yours for Loveliness.—This for shampoo. Filed by Kay Daumit, Inc., Jersey City, N. J. Claims use since July 24, 1943.

Golden Corsage—This for bubble bath. Filed Mar. 11, 1947 by Lander Co., New York. Claims use since Mar. 1, 1947.

Kleenaire — This for disinfectant. Filed July 23, 1946 by Sunshine Products Co., Seattle, Wash. Claims use since July 15, 1936.

The following trade-marks are published in compliance with section 13 (a) of the Trade-Mark Act of 1946. Notice of opposition must be filed within 30 days of publication and a fee of $25 must accompany each notice of opposition.

Antaron—This for liquid detergent. Filed July 24, 1948 by General Aniline & Film Corp., New York. Claims use since May 14, 1948.

Merrit—This for shaving soap, toilet soap, and cleaner. Filed July 28, 1948 by Merrit Products Co., Paris, Tenn. Claims use since Jan. 30, 1942.

Thoranol-WS—This for detergent. Filed Aug. 20, 1948 by Thor. Chemical Co., Chicago. Claims use since Sept. 1947.

How-Dee—This for general purpose cleaning compound. Filed Aug. 25, 1948 by Lothrop Sales Co., Boston. Claims use since July 15, 1948.

Nogero—This for detergent preparation. Filed Nov. 15, 1948 by Nogero Mfg. Co., Portland, Ore. Claims use since Jan. 8, 1942.

Mouse Seed—This for rodent exterminator. Filed Sept. 2, 1947 by W. G. Reardon Laboratories, Inc., Port Chester, N. Y. Claims use since 1903.

Roachex—This for roaches. Filed Dec. 31, 1947 by Florida Chemical Industries, Ocala, Fla. Claims use since Oct. 21, 1947.

Winsome—This for shampoo. Filed Jan. 26, 1948 by Allied Home Products Corp., Beloit, Wis. Claims use since Oct. 7, 1947.

Shell—This for insecticide sprays. Filed Jan. 27, 1948 by Shell Oil Co., San Francisco. Claims use since May 1930.

Robertson—This as ingredient of insecticides. Filed by Feb. 6, 1948 by H. H. Robertson Co., Pittsburgh. Claims use since Mar. 1, 1937.

9-0 "Nine-oh"—This for tooth paste. Filed Mar. 12, 1948 by Nine Oh Products, Inc., Las Vegas, Nev. Claims use since Aug. 1940.

Restoration—This for shampoo. Filed May 15, 1948 by Anatox Mineral Products Corp., Franklin, Mass. Claims use since Dec. 1, 1946.

Bloom-O-Cide—This for plant insecticides. Filed May 27, 1948 by Flower Foods, Inc., Maywood, Ill. Claims use since May 15, 1942.

Klorspra—This for insecticide. Filed Aug. 11, 1948 by Corn States Serum Co., Omaha. Claims use since June 17, 1948.

Bloom-O-Cide—This for germicidal agent for use on plants. Filed Oct. 13, 1948 by Stoneman Lab., Chicago. Claims use since May 10, 1948.

Tuf-Lustre—This for polishing waxes. Filed Nov. 3, 1947 by E. L. Bruce Co., Memphis, Tenn. Claims use since Dec. 1933.

Em-Bee—This for floor wax. Filed Jan. 6, 1948 by Meyer Brothers, Paterson, N. J. Claims use since August 1938.

Fomoco—This for wax polishes. Filed Nov. 20, 1948 by Ford Motor Co., Dearborn, Mich. Claims use since Nov. 17, 1948.

Shredsope — This for laundry and toilet soaps. Filed Aug. 26, 1947 by J. R. Watkins Co., Winona, Minn. Claims use since Feb. 4, 1925.

Telegraph—This for bar soap. Filed Jan. 22, 1948 by Corona Soapcrafters, Redlands, Calif. Claims use since Jan. 8, 1947.

Kra-Z-Kleen—This for cleaning compound. Filed May 4, 1948 by American Oil and Disinfectant Corp., New York. Claims use since Mar. 19, 1948.

Labtone—This for glass cleaner. Filed July 23, 1948 by Braun-Knecht-Heimann Co., San Francisco. Claims use since July 1, 1948.

Antarane—This for detergents. Filed July 24, 1948 by General Aniline & Film Corp., New York. Claims use since May 14, 1948.

Antarate—This for detergent. Filed July 24, 1948 by General Aniline & Film Corp., New York. Claims use since May 14, 1948.

Oldparis—This for mouth wash, hair tonics. Filed Nov. 16, 1944 by Moses L. Heim, Brooklyn, N. Y. Claims use since Nov. 8, 1944.

Greenwoods — This for dog shampoo. Filed Dec. 16, 1946 by Vermex Co. of America, Glendale, Calif. Claims use since Aug. 26, 1946.

Sani-Trol—This for composition for general use as a disinfectant. Filed July 5, 1947 by Frontier Products Co., St. Louis, Mo. Claims use since May 29, 1947.

Union-Made — This for cream shampoo. Filed Dec. 15, 1947 by Union Products, Inc., Chicago. Claims use since July 11, 1947.

Black-Leaf—This for parasiticides. Filed Jan. 27, 1948 by Tobacco By-Products and Chemical Corp., Louisville, Ky. Claims use since May 1947.

Ethofat — This for detergents. Filed May 4, 1948 by Armour & Co., Chicago, Ill. Claims use since Dec. 26, 1947.

Lovli-do — This for shampoo. Filed June 19, 1948 by Loveliness Beauty Aids, New York. Claims use since June 18, 1947.

Sciensol — This for mildew proofing agent. Filed July 15, 1948 by Scientific Solutions, West Palm Beach, Fla. Claims use since Mar. 17, 1948.

Biopal — This for detergents. Filed July 5, 1947 by General Dyestuff Corp., New York. Claims use since May 1, 1946.

Wilson—This for cleaning fluid.

MACKENZIE DETERGENT CHEMICALS

STMPP

(Pronounced Stemp)

Sodium Tetra Meta Pyro Phosphate

$(NaPO_3)_4Na_4P_2O_7$ (pH 7.1)

A NEW AND VERY INTERESTING CHEMICAL FOR MANUFACTURERS OF

Synthetic Detergents
Lower cost
- Increased sequestering action
- Does not reduce wetting ability
- Easier and more complete rinsing

Soaps
Lower cost
- Increased sequestering action
- Phenomenally increased wetting ability
- Easier and more complete rinsing

Cleaning Compounds
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The unusual properties of this new glassy phosphate can more than double the overall detergency of your product.

Sodium Metasilicate (Pentahydrate)

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- Dishwashing Compound
- Driveway & Kitchen floor cleaner
- Concentrated soap powders
- Streakless car wash & others

MACKENZIE LABORATORIES INC.

Front & Yarnall Sts., Chester, Pa.

Filed July 5, 1947 by Wilson Chemical Co., Chicago. Claims use since July 1922.

Spic and Span—This for cleaner and detergent. Filed July 5, 1947 by Procter & Gamble Co., Cincinnati. Claims use since Apr. 20, 1925.

Brite-ize—This for lens cleaner. Filed Aug. 27, 1947 by Brite-Ize Co., Chicago. Claims use since 1933.

Wuz-Blak—This for detergent. Filed Oct. 16, 1947 by Aurora Products Corp., Cleveland. Claims use since Dec. 6, 1944.

Nairn — This for liquid compounds for cleaning linoleum. Filed Dec. 24, 1947 by Congoleum-Nairn, Inc., Kearny, N. J. Claims use since Apr. 5, 1946.

Tromete — This for chemical cleaning compound. Filed Aug. 31, 1948 by Westvaco Chemical Corp., New York. Claims use since Nov. 13, 1924.

Sterimatic — This for germicides. Filed Sept. 13, 1947 by Murdock Distributors, Inc., Los Angeles. Claims use since Feb. 20, 1940.

Sergeant's—This for tick killer. Filed Nov. 7, 1947 by Polk Miller Products Corp., Richmond, Va. Claims use since May 3, 1938.

Cooper—This for disinfectant. Filed Aug. 11, 1948 by William Cooper & Nephews, Inc., Chicago. Claims use since 1914.

Tetfoam—This for degreaser. Filed Sept. 26, 1947 by Henry B. Heller Corp., St. Louis, Mo. Claims use since Aug. 15, 1946.

F.S. — This for detergent for metal cleaning. Filed Nov. 12, 1947 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since Nov. 5, 1940.

Woodbury—This for soap. Filed Feb. 9, 1948 by John H. Woodbury, Inc., Cincinnati. Claims use since Jan. 1, 1891.

Kurfees—This for liquid cleaners for floors. Filed May 18, 1948 by J. F. Kurfees Paint Co., Louisville, Ky. Claims use since Jan. 1, 1907.

Vicar Dee—This for powdered cleanser. Filed May 29, 1948 by Virginia-Carolina Chemical Corp., Richmond, Va. Claims use since Apr. 13, 1948.

Vicar San — This for alkaline cleanser in powder form. Filed May 29, 1948 by Virginia-Carolina Chemical Corp., Richmond, Va. Claims use since Apr. 13, 1948.

Velva Pine—This for preparation for cleaning walls. Filed June 4, 1948 by Peerless Sal-O-Well Co., Buffalo, N. Y. Claims use since 1940.

Puritan—This for bottle cleanser. Filed June 23, 1948 by Puritan Sales Co., Atlanta, Ga. Claims use since May 1943.

Sted—This for surface active agents for general use. Filed Sept. 7, 1948 by Monsanto Chemical Co., St. Louis, Mo. Claims use since Oct. 1, 1947.

Fomoco—This for metal polish. Filed Nov. 20, 1948 by Ford Motor Co., Dearborn, Mich. Claims use since Nov. 17, 1948.

Quality Plus—This for moth repellent. Filed Aug. 20, 1947 by Stanley Home Products, Westfield, Mass. Claims use since Mar. 15, 1938.

Mothmaster—This for Insecticides. Filed Nov. 26, 1947 by American Moth Products Corp., New York. Claims use since Nov. 13, 1947.

Allphos—This for insecticides. Filed Feb. 24, 1948 by California Spray-Chemical Corp., Wilmington, Del. Claims use since Jan. 9, 1948.

Ozitone—This for deodorant and disinfectant. Filed Apr. 8, 1948 by G.

EXQUISITE FLORALS FOR SOAPS

Apple Blossom	Honeysuckle	Rose
Carnation	Hyacinth	Sweet Pea
Clover	Jasmin	Syringa
Fougere	Lavender	Verbena
Gardenia	Lilac	Violet
Geranium	Lily of the Valley	Wisteria

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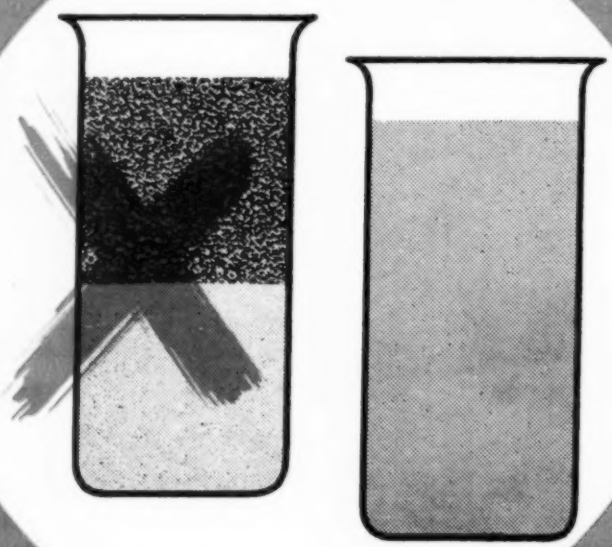
NON-IONIC EMULSIFIERS



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A cocoanut fatty amine condensate with non ionic properties in alkaline solution. Will improve the detergency of anion-active or cation-active compounds — 100% active — Very light in color.

REPCOLENE E-90

A cocoanut fatty acid amine condensate soluble in hydrocarbons and having excellent emulsifying properties.

Write for complete information sheets on these two unusually efficient products.

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Manufacturing Chemists

624-634 SCHUYLER AVENUE • LYNDHURST, NEW JERSEY

H. Wood & Co., Toronto, Canada. Claims use since Dec. 13, 1945.

Resiproofer — This for insecticide. Filed Apr. 20, 1948 by Residex Corp., Newark, N. J. Claims use since Jan. 29, 1948.

U No Me—This for tri-sodium phosphate. Filed Apr. 24, 1948 by Jewel Tea Co., Barrington, Ill. Claims use since Apr. 1934.

Trudi—This for shampoos. Filed June 3, 1948 by Ideal Products, Inc., Waxahachie, Tex. Claims use since May 1, 1948.

Arden — This for shampoos. Filed June 14, 1948 by Elizabeth Arden Sales Corp., New York. Claims use since Jan. 2, 1910.

Pure—This for automobile cooling system chemical cleaner. Filed Aug. 17, 1948 by Pure Oil Co., Chicago. Claims use since Apr. 1, 1937.

Fosklor—This for bactericide. Filed Aug. 25, 1948 by Westvaco Chemical Corp., New York. Claims use since Apr. 18, 1936.

Metex—This for metal cleaner. Filed Feb. 6, 1948 by MacDermid, Inc., Waterbury, Conn. Claims use since Aug. 3, 1922.

Childsco—This for soap. Filed July 28, 1948 by Childsco Products Co., Macon, Ga. Claims use since May 20, 1948.

Fosklor—This for detergent. Filed Aug. 25, 1948 by Westvaco Chemical Corp., New York. Claims use since Apr. 18, 1936.

Brunsco—This for leather cleaner. Filed Sept. 20, 1948 by Brunswick-Balke-Collender Co., Chicago. Claims use since July 21, 1937.

Gone—This for liquid deodorizer. Filed July 5, 1947 by Real Silk Hosiery Mills, Indianapolis, Ind. Claims use since July 10, 1945.

Nestle—This for shampoo preparation. Filed Feb. 12, 1948 by Nestle-Lemur Co., Meriden, Conn. Claims use since 1930.

PHD — This for insecticide. Filed May 29, 1948 by Warner Co., Philadelphia, Pa. Claims use since April 1945.

Armstrong—This for cleaning preparations for general uses. Filed Feb. 24, 1948 by Armstrong Cork Co., Lancaster, Pa. Claims use since Dec. 1, 1938.

Kam—This for bottle washing compound. Filed Oct. 2, 1947 by Westvaco Chlorine Products Corp., New York. Claims use since June 2, 1947.

Sparkle Brite—This for liquid type cleaner. Filed Nov. 10, 1947 by T. D. Payne Laboratories, Houston, Tex. Claims use since Jan. 1945.

Invisible Accessory — This for toilet and laundry soap. Filed May 28, 1948 by Consolidated Cosmetics, Chicago. Claims use since May 14, 1948.

Golden Chance—This for soap. Filed June 8, 1948 by Harriet Hubbard Ayer, Inc., New York. Claims use since May 7, 1948.

Beauty in the Morning — This for soaps. Filed July 1, 1948 by Universal Laboratories, Inc., East Orange, N. J. Claims use since June 4, 1948.

Nu-Ray—This for cleaning preparations for household use. Filed July 12, 1948 by Robinson Brothers Buffalo Ammonia, Inc., Brooklyn, N. Y. Claims use since June 1, 1948.

Tornado — This for cleaning compound for floors and walls. Filed Sept. 13, 1948 by Breuer Mfg. Co., Chicago. Claims use since June 1947.

PH^{7}—This for chemical compound used as cleaner. Filed July 5, 1947 by National Aluminate Corp., Chicago. Claims use since Nov. 1, 1934.

Orthophos — This for insecticides. Filed Feb. 24, 1948 by California Spray-Chemical Corp., Wilmington, Del. Claims use since Jan. 9, 1948.

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PRODUCTION SECTION

Soaps From Fatty Acids

Improvements in producing and handling fatty acids now result in better, less expensive soaps that are easier to make.

THE bulk of soap is probably still produced by saponification of fats from caustic soda, as has been done for many centuries. However, new splitting processes, particularly the Autoclave and the Twitchell methods, provide a superior method for recovery of glycerine, and permit soap manufacture with inexpensive soda ash instead of caustic soda. At first soaps made by this method were of inferior quality, particularly as to color, because the color of the crude fatty acids was usually somewhat darker than that of the neutral fat from which they were made.

Distilled Fatty Acids

VERY soon it became clear that the fatty acids had to be distilled in order to serve as a really suitable raw material for soap manufacture. It was discovered that fatty acids of first-class quality could be produced only under reduced pressure with simultaneous exclusion of air. Steady improvements in the technique of vacuum distillation led to construction of continuously working stills made of special qualities of stainless steel and of nickel alloys.

These improvements permit distillation of fatty acids at relatively low temperatures, with very brief exposure to the high temperatures. All superheating is also avoided.

White Fatty Acid Production

VERY fine grade fatty acids are now produced in modern fatty-acid distillation plants, from very inferior fatty raw material. The fatty acids are free from any unpleasant odor, are pure, and absolutely white. They are, therefore, suitable for making the best white toilet soap and similar products, and will give soaps even superior in color to those obtained by direct saponification of white fats treated with bleaching agents. The chemical composition of the fatty acids themselves is not changed, but no more than about 0.5 per cent of total impurities will be present, which consist of about equal parts of moisture and unsaponifiable matter. No ash, unsplit fat, or hydroxy fatty acids are present.

Fatty acids have formerly been badly discolored by storage in unsuitable or insufficiently protected metal containers such as black iron drums. Nowadays they are stored and delivered in aluminum drums or tanks, or in steel drums with acid-resistant lacquer lining.

Method of Use

NO PARTICULAR difficulties are encountered in the use of fatty acids for soap manufacture. Some soapers let the fatty acid run gradually into the soap kettle, which contains half of the soda-ash solution, while the other half of this solution is pumped in subsequent to the addition of the fatty acids. The total amount of soda ash should correspond to about 85 per cent of the quantity needed for total saponification. When no more carbon dioxide foam is formed, the remaining 15 per cent of alkali is preferably added as caustic alkali. It is advisable to remove the carbon dioxide with the help of a steam-air blower fixed to the soap kettle.

Other manufacturers allow the fatty acid and the alkali to run together into the pan, taking care that the mixture is always on the alkaline side.

Fatty Acids Advantages

BESIDES saving in alkali, the fatty acids can be saponified much more easily and quickly than fats. Dangers connected with incomplete saponification are avoided. The soap can be finished in the kettle right after saponification, since no salting out is required. Less steam and time are needed and about three times as much soap can be made in the same soap kettle from distilled fatty acids as can be made from ordinary crude fat.

Soap free from glycerine, as well as ethanolamine soaps, can be produced only from fatty acids. Glycerine is more readily recovered from saponification lyes than from soap lyes.

In the future it will not be surprising if large soap manufacturers produce soaps only from distilled fatty acids made in their own factories, with all of the various stages of splitting, distilling, and saponification performed in one single continuous process. Plants of this type cannot be

Now... CENTRIFUGALLY-CAST DUAL METAL ROLLS

Pioneered by LEHMANN

FOR GREATER PRODUCTION ECONOMY AND PERFORMANCE

CDM Rolls are the most significant improvement in roll design and construction since statically cast chilled iron replaced granite. They represent a basic engineering advance typical of LEHMANN initiative and leadership.

These new LEHMANN **CDM** (Centrifugally-cast Dual Metal) ROLLS are produced by a new application of centrifugal casting... the end result of extended and intensive research, in collaboration with one of America's outstanding foundries.

The centrifugal casting technique permits a degree of quality control never before possible—it provides a tighter, more dense grain structure resulting in greater uniformity of hardness at the grinding surface. This improved grinding surface is indestructibly bonded to highest quality gray iron for maximum strength and resilience.

•

These pictures will tell you more about the service and performance potentials of these new rolls than we can convey in words.

The photograph of longitudinal section (Fig. I) and the photomicrographs (Figs. II and III) show graphically the metallurgical structures of the component parts of the new CDM Roll. Note the clean even line of fusion between the white iron grinding layer and the gray iron. The resulting roll is an engineering advance of great significance to all who use roller mills.

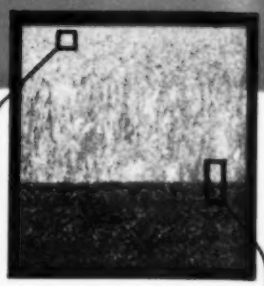

Fig. I (Actual Size). Longitudinal section through roll showing outer layer of chilled white iron, fusion zone, and part of gray iron core.

Fig. II (X100). Detail of microstructure of the chilled white iron near outside or wearing surface of roll—note compact interlaced crystal structure.

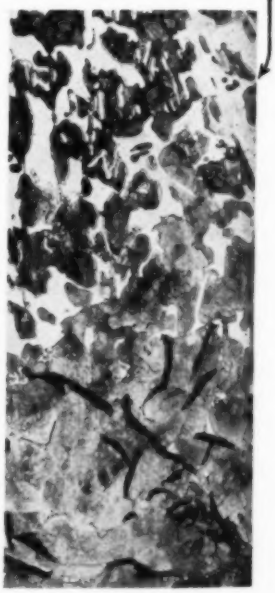

Fig. III (X100). Detail of microstructure across metallurgical bond showing complete fusion of white and gray iron.

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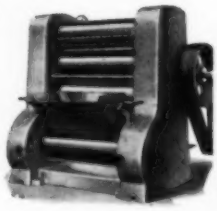
THE STANDARD FOR QUALITY IN MACHINERY



CDM rolls are now available in new LEHMANN MILLS

Plan now to install new LEHMANN mills equipped with CDM Rolls

J. M. LEHMANN COMPANY, INC. MAIN OFFICE and FACTORY *Lyndhurst, N.J.*

erected cheaply. However, small and medium-sized soap plants can utilize fatty acids since such products will be available in tank wagons, or in small units if desired. R. Rowe, *Soap, Perfumery, Cosmetics* 22, 257-9, '49.

Manufacturing Toothpaste

IN EARLIER toothpastes, sweeteners consisted largely of glycerine, honey, simple syrup, or purified molasses. Today in Britain, saccharin, which is four times as sweet as sucrose, is used extensively. The amount is usually about one part per thousand, but it may be less in combination with glycerine and other agents. Saccharine alone sometimes shows an acidic or brackish tendency. Soda ash increases the solubility of saccharine but must be used with care to avoid development of carbon dioxide.

Many fruit flavors are now incorporated, with or without a peppermint base. The main feature in making a selection is usually to incorporate a distinctive, refreshing flavor into a particular brand, and most especially one which cannot be readily copied by competitors.

The total flavoring agent is usually one to three per cent, but where the best oils only are used, may be even less than one per cent. The usual flavoring oils include rose, caraway, wintergreen, anethol, lavender, eugenol, cinnamon, cassia, eucalyptol, and the more medicinal oils, as well as different selected mints.

Hardening Problems

FLAVOR ingredients and sweetening agents rarely cause undesirable hardening of the ultimate paste. Too much water introduces the likelihood of undesirable reactions. The tendency nowadays is to regard the familiar powdered soap (Castile, olive-oil, or palm-oil) as a good substance to forestall hardening. Many recently patented compositions lack soap altogether, and in its place have substituted lactates, stearates, and oleates. In order to add to the lubricant effect, about one per cent of petroleum jelly is incorporated. Alternate materials are synthetic waxes, glycol, glyceryl stearates, and selected mineral oils in equivalent small proportions.

The ease with which the ribbon of paste emerges depends on such additions, and is a feature which must not be overlooked, especially where aluminum or the more recent plastic tube is used. Direct tests on the tubes should always be made. This is done by applying pressure from a known weight onto the tube, and checking the time taken to empty the contents by means of a stop-watch.

Production Method

DOUGH mixers are used with a slow movement of the blades to prevent inclusion of air bubbles. The binding agent of glycerine or similar compound is first placed in the machine, followed by the powder bases, which have previously been sifted and mixed. Mixing continues until the desired degree of consistency is obtained. According to recent reports, mucilages of two per cent sodium alginate, calcium carragheen sulfate, or methyl cellulose, make satisfactory binders, but the proportion of soap should never be less than five per cent.

These are added after the first treatment has been completed; the soap is added last, that is, after the flavoring agents have been included. Addition of tin oxide gives a distinctive gloss to the teeth. Sodium benzoate remains almost unsurpassed as a remover of tartar incrustations, although other compounds, including cactus mucilage, have come to light as competitors. However, these are more likely to be used in powders than in pastes. A. G. Arend, *Perfumery & Essen. Oil Record* 40, 48-50, 54 (1949).

Detergent Studies

Two detergents which were fairly pure, but which still showed strong minima in the curve for surface tension plotted against concentration, were further purified by foam fractionation. The foamed-off portions showed very strong minima, while the residues showed either a greatly reduced minima or none. The minima apparently arise from adsorption of a small amount of surface-active material below the critical concentration of the main solute, and its effective removal from the surface above the critical concentration through solubilization within the colloidal micelles of detergent. A. P. Brady, *J. Phys. Colloid Chem.* 53, 56-66 (1949).

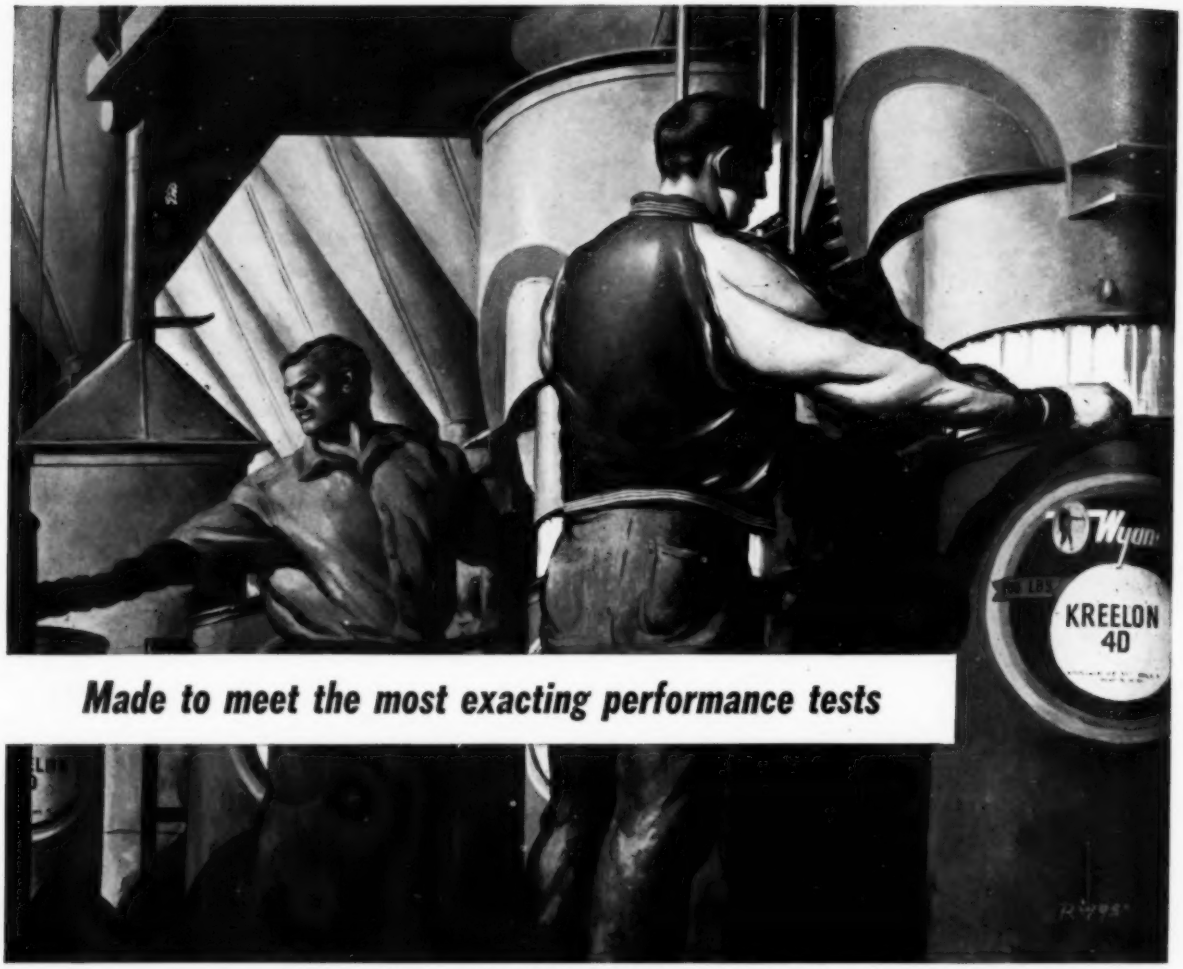
Detergent From Maltose

A surface active agent for use with textiles is obtained by treating stearic acid hydrazide with maltose in the presence of a solvent such as glacial acetic acid or alcohol, at 60-80° C. It is a white powder which dissolves in water to give a foaming solution. Soc. pour l'ind. chim. a Bale, Swiss Patent No. 230,841; through *Chem. Abs.*

Potassium Silicates in Soaps

Potassium silicates are much more effective as builders with soap than is potassium carbonate. A mixture of soap and silicate (K_2O_3.-$3SiO_2$) prevents deposition of ferric oxide pigment on cotton cloth about equally as well as soap alone; this mixture is more effective than soap alone for preventing the deposition of raw umber. Soil-removal experiments with standard soil showed that a mixture of this silicate and potassium coconut oil soap was about equally as efficient in distilled water and more efficient in 300 p.p.m. hard water than soap alone.

Since potassium silicates are more expensive than the corresponding sodium silicates they will be used only where their special properties justify the additional cost. Their high solubility and miscibility with soap systems justifies their use in liquid, figged, and paste potash soaps. They may be added to soda soaps to increase the solubility and rates of solution and sudsing without encountering the difficulty of salting out a mixed soda-potash soap. One part of potash soap to two parts of silicate has a greatly enhanced foaming power over that of the soap alone. R. C. Merrill and R. Getty, *J. Am. Oil Chemists' Soc.* 26, 5-10 (1949).



Made to meet the most exacting performance tests

Here you see the conveyor line and the great, looming storage bins of the new Synthetic Detergent Plant at Wyandotte

WYANDOTTE KREELON—*the white, uniform detergent and wetting agent*

If you produce cleaning compounds or other products that call for an effective synthetic organic detergent, you'll find the answer in *Wyandotte Kreelon**. Or if some operation in your plant requires an unusual amount of time and labor in the wetting-out process, chances are that Kreelon can help you do a *better job, faster.*

This versatile chemical, broadly classified as a surface-active agent, is designed to meet rigid performance specifications. Initial production of Kreelon was delayed for months until the product's color, chemical analysis and performance measured up to the highest standards. Controlled production maintains these standards.

The three grades of Kreelon produced range from *white* to *light cream* in color and have only a faint characteristic odor. Equally important is the fact that they retain their wetting, sudsing and cleansing properties in acid, alkaline or neutral solutions — in hard or soft waters.

Wyandotte Kreelon is readily available and economically priced. Complete information on its properties and suggested uses will be furnished at your request. In addition, our experienced technical staff stands ready to assist you in solving many detergency problems.

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Expanded Usage for Ion-Exchange Seen

RESULTS from the development and application of the phenomenon of ion exchange have been far reaching but uses found to date for this process are just the beginning of a list that will steadily increase, a Chicago chemist, A. S. Berman, asserted at a session of the annual joint conference of the Chicago Technical Societies Council in that city last month. Reviewing the history of the discovery and subsequent utilization of ion exchange, Mr. Berman, a chemical consultant, said that, although first noted just 100 years ago, the first successful application of the process came some fifty years ago, with the invention of the Zeolite water softener for treating hard water.

"The most powerful incentive to the vastly expanded industrial utilization of ion exchange came in 1935," he continued, "with the advent of purely synthetic organic ion exchange resins having an ability to exchange and remove negative ions. With this development it is now possible to make the equivalent of distilled water at only a fraction of the cost of thermal distillation in the case of most normal waters."

He told how, in treating waste liquors ion exchange processing has resulted in recovery of valuable quantities of various mineral substances. Further application of the process, he predicted, will undoubtedly result in still more valuable benefits to industry.

In another paper on "Compression Distillation," E. T. Erickson, president of Erickson Chemical Co., Chicago, related how this process is now being used to produce distilled water for industrial and commercial purposes. He described the process, which requires no fuel to be burned under the still, and listed its five advantages as: low operating cost; pyrogen-free water; self-contained distilling plants; capacity to fit individual plant requirements; and automatic operation.

This compression distillation process, Mr. Erickson declared, is important to every manufacturer or processing industry using distilled water or combatting a problem of waste disposal. It is capable, he said, of producing good water from impure water or concentrating many types of industrial wastes.

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Analysis of Scouring Powders

Analysis of eight samples of scouring powders representative of those appearing on the British market, showed that the soap content ran from 3.5 to six per cent, soda ash from 5.0 to 10.5 per cent, and abrasive content from 79.2 to 89.0 per cent. Two samples contained a few per cent of phosphate. Soap and soda ash are both low as compared with similar products on the American market. This is probably due to shortages rather than an attempt to make the product mild in terms of alkaline reaction.

Fine silicas, amorphous silicas, powdered feldspar, volcanic ash, pumice, and pumicite are commonly found as abrasives. Scouring powders should contain only carefully selected and standardized abrasives. Scratch tests on polished and painted surfaces should be used to supplement laboratory sieve analyses, in order to ensure that the abrasive powders have the desired uniformity, particle size, and degree of hardness. Mere predominance of soft particles does not always ensure the non-scratching action of sharper, harder impurities. Thus a powder passing 75 per cent through a 300 mesh but retaining three per cent of sand on a 60 mesh, has been found to cause more damage than one passing only 35 per cent through a 300 mesh and the rest through 200 and 100. J. M. Vallance, *Soap, Perfumery, Cosmetics 22*, 158-9 (1949).

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Use of Nonionics

Nonionic detergents are growing in popularity, since they possess many interesting properties. For example, they can be synthesized to give practically no foam, but still act as good detergents.

One application in particular is for scouring acetate rayon, for which they are ideally suited. They are completely neutral, have excellent resistance to hard water, and resist hydrolysis. Products with multiple ether-oxygen linkages are excellent emulsifiers and rapidly remove oil, waxes, etc. from fibers, without scum formation. By adding these agents directly to the lubricating oils, such oils can be readily washed off without need of scouring. Their high emulsifying action prevents redeposition of suspended soil on fabric.

A drawback of these products is the fact that at 150°F. or over, their aqueous solution becomes turbid and precipitation may occur due to decreased solubility. The phenomenon is reversible and on cooling a clear solution results. G. Leffingwell, *Rayon & Synthetic Textiles 29*, No. 11, 89-92 (1948).

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Saponification Number

Methanol, ethyl, propyl, and normal butyl alcohols were compared for use in determination of saponification number. Methanol and butyl alcohol were found to be unsuitable, while use of propyl alcohol presented real advantages. The saponification number varies with the time allowed for reaction. Under some conditions it may reach a maximum value and then decrease. Propyl alcohol gave a maximum in 45 minutes, after which the value decreased. E. Andre and M. Maille, *Oleagineus 3*, 525-31 (1948).

—— ♦ ——

Low-moisture Soap

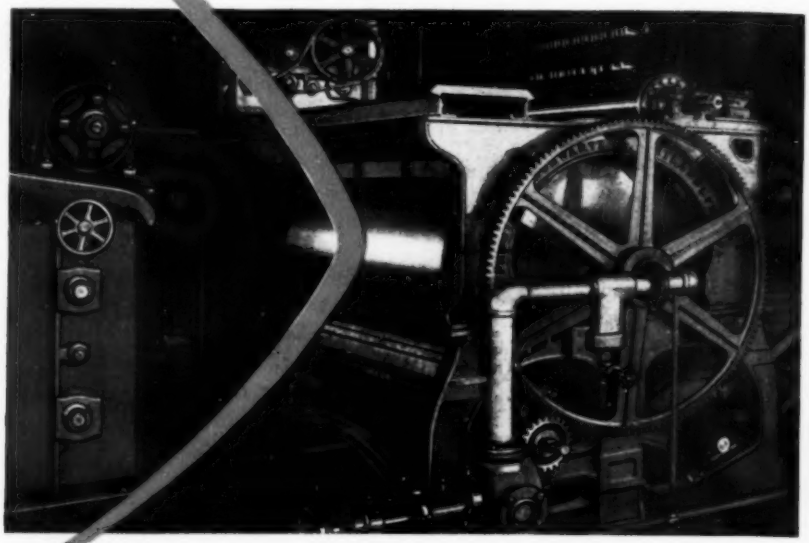
A process is given for neutralizing fatty acids without drying, to produce soaps with a moisture content below that of kettle soap, for example, 12-27 per cent of moisture, according to previous choice. V. Mills, to Procter & Gamble Co. British Patent No. 607,721.

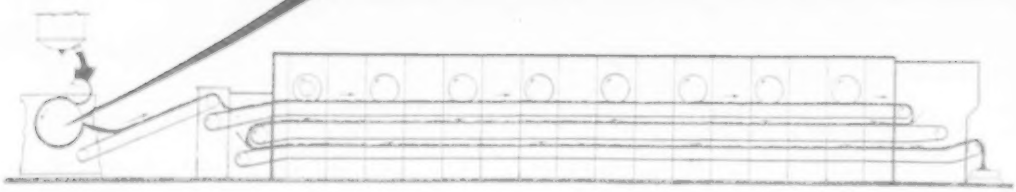
—— ♦ ——

Condensation Product

A foaming, surface-active agent is obtained by the catalytic condensation of coconut fatty acid anilide with *N*-methylol chloracetamide sodium sulfonate. Soc. pour l'ind. chim. a Bale Swiss Patent No. 22,543; through *Chem. Abs.*

TEMPERATURE SHOULDN'T VARY on a chilling roll, either!





REQUIREMENT: To maintain uniformity in the layer of soap on the chilling roll, the temperature must be uniform at all points on the surface of both the feed and chilling rolls. This is an important requirement—for any lack of uniformity at this point cannot be remedied in subsequent processing.

THE PROCTOR ANSWER: In the design of the Proctor automatic flake soap system, adequate internal piping and spray systems are provided in both rolls to keep the surface temperature at the desired reading on the complete surface of the roll. In this way, every bit of the liquid soap is subjected to the same temperature during the cooling process. The result is uniformity in the consistency of the soap . . . uniformity which carries through the rest of the processing.

Temperature control is maintained not only in the chilling operation—but also throughout the drying operation. Temperature in each dryer compartment is automatically controlled by an air operated, recording type temperature control.

Accurate control of temperatures during chilling and drying is one of the ways in which the Proctor automatic flake soap system is daily meeting the rigid requirements of modern soap makers.

It combines the precision engineered chilling machine, which forms uniform ribbons—with a drying system designed for accurately controlled drying.

That is why the Proctor automatic flake soap system has been so tremendously successful and the choice of the nation's leading soap manufacturers.

As you consider your own plant processing—you may find it interesting to see how this Proctor automatic "precision engineered" system may be employed profitably. Write today for the latest information.

COST CONSCIOUS?
Let Proctor engineers show you in black and white how the overall efficiency and completely automatic operation of this system reduces production costs.

Much Proctor drying equipment and textile machinery is covered in full or in part by patents or patents pending.

Proctor & Schwartz, Inc.

625 TABOR ROAD • PHILADELPHIA 20 • PA.

PRODUCTION CLINIC

By E. G. THOMSSEN, Ph.D.

RECENTLY the writer visited a manufacturing plant that employed many straight production lines for large quantity output in small areas. It was interesting to see the maze of different types of conveyors scheduling the various components to arrive at the assembly point at exactly the right moment. The business is a highly competitive one and a few cents saved on labor are very important. The superintendent was able to achieve large-scale production by wage incentive plans, rest periods and correct lighting. In one respect, however, he was remiss. All his efforts toward employee efficiency were aimed at from the knees upward. It was quite evident that little attention was paid to worker efficiency or comfort from the knees downward. Perhaps management considered the comfort of this part of the workers' anatomy unimportant.

On most of the conveyor tables the girls and men stood at their work. The items handled in several cases came out of a washer and dripped water on the floor. To keep the workers' feet off the wet floor a slatted frame was laid the length of the table on either side. Standing, they straddled these slats in wet shoes, many with high heels or of open toe types. It took but a glance at the constantly shifting of weight on the feet to conclude that discomfort was general.

Alert production men know that employees' efficiency is increased if all working conditions are good. Foot discomfort is one detail that does not always receive proper consideration. In spite of foot trouble being a major cause of absenteeism, estimated by chiropodists to be costing industry over $100 million dollars annually, the right kind of shoes, floors and foot care are sometimes overlooked. Foot care is considered a personal matter to which workers should attend. Even when other wearing apparel such as caps and uniforms or safety devices like dust masks and goggles are provided, shoes are frequently overlooked.

The National Association of Chiropodists is bringing foot trouble

DR. THOMSSEN

to the attention of owners of factories, stores and construction companies. They point out that foot ailments have an important bearing on efficient work and that 16 per cent of all workers lose as high as two days' work per month because their feet bother them. Employees troubled with corns, bunions and other types of sore feet tend to be inefficient. They become irritable, anger those with whom they work, make more mistakes and are slovenly about the quality of their work. Accidents often occur as a result of aching feet because to get relief from the pain the person assumes an off balance stance, which is particularly dangerous if they are working near machinery or conveyor belts.

In increasing volume companies are recognizing the importance of foot care. Like an army general, they realize that healthy feet are necessary for the individual to function well. Where free foot clinics have been established, the expense involved has been more than offset by the benefits. In two years' time one company has reduced absenteeism by 25 per cent, and at the same time raised production efficiency. In other cases, weekly visits to chiropodists have resulted in less friction among employees and more and better production. Some companies have gone so far as to have a competent foot doctor make a survey of their plants and correct working conditions to prevent foot troubles. Such steps have resulted in increased comfort, especially to employees who are on their feet most of the day.

Referring back to the plant mentioned at the start of this article, it would have cost very little to construct a metal gutter or trough to drain off the excess water to the sewer. This would help to keep the floor dry. Then, instead of straddling an uncomfortable rack, lattices could be replaced by solid wooden boards or, even better by rubber or fibre pads. Such consideration for the employees' foot comfort would result not only in more and better production, but create a kindlier relationship between employee and employer. We are sure that many production departments are losing money by not considering the employees' welfare below the knee line.

Quick Flexible Connections

BAUER & BLACK, Chicago, are offering "Duct Connector Tapes" wherever flexible connections are required for heating or air conditioning work. Two types, #281 and #263, are available for quickly and neatly making these connections. The tapes consist of a backing of "Fiberglas" coated with a thermo setting adhesive that grips tighter when heated. Temperatures up to 1000° F. fail to break its grip. No. 281 is coated on both sides, #261 on one side. This tape, which saves time and money, is available in rolls from jobbers.

A Look At Our Advertising

SINCE we last commented on some of the many interesting items that appear on the advertising pages of *Soap*, we note certain products that should be emphasized for those who may have overlooked them.

Fine Organics, Inc., New York, feature their "Germitol" and "Bretol" quaternary ammonium compounds. These products, they state, give more

Chemicals you live by

WHO THE HECK INVENTED SOAP?

Don't blame *us*, Butch! Perhaps it was some ancient goatherd who accidentally boiled goat's tallow with wood ashes. Some of the stuff probably got on his hands, and it sudsed when he tried to wash it off. He had an invention . . . crude soap!

No, we didn't invent soap. Don't even make it. But we confess we help others to do so. DIAMOND ALKALI supplies tons and tons of Caustic Soda and Soda Ash to make soap. Their job is to combine with molecules of fat and oil and form a new compound . . . soap.

But that soap is still soft. One way to give soap hardness and body and make it last longer is to add another DIAMOND chemical, Silicate of Soda. It helps keep bars from melting in the soapdish.

Soap is just one of many things made with DIAMOND ALKALI products. Rayon, paper, leather, plastics, aluminum, glass, steel . . . an almost endless list of things that are vital to your well-being . . . require chemicals we produce, *Chemicals You Live By*.

DIAMOND ALKALI COMPANY ◆ CLEVELAND 14, OHIO

THIS ADVERTISEMENT is one of a series appearing in Time and Newsweek to broaden public understanding of the part Diamond Alkali chemicals play in everyday living. We will welcome your inquiries on our line of chemicals.

DIAMOND ALKALI CHEMICALS

SODA ASH • CAUSTIC SODA • CHLORINE & DERIVATIVES • BICARBONATE OF SODA • SILICATES • CALCIUM COMPOUNDS • CHROME COMPOUNDS • ALKALI SPECIALTIES

than the necessary requirements for germicidal, fungicidal and sanitizing operations. Furthermore, the company is stressing octyl resorcinol, octyl cresol and propyl gallate as antioxidants for oils, fats and soaps. The company will furnish samples and prices upon request.

Anyone seeking round paper containers with metal or paper ends for the packaging of moth cakes, para crystals, hanger boxes, cleaners or drugs and chemicals, will find a large assortment available from Packard Container Co., West New York, N. J. This company can give immediate delivery of all sizes of this type container.

Glass polish is an item which has met with spectacular success. M. & H. Laboratories, Chicago 8, are in a position to furnish limited quantities of this product in bulk to interested parties. Boston Chemical Industries, Inc., Boston 18, Mass., also have developed a new wax product of this type. It is available in 55-gallon drums or other standard size packages for the trade.

Very often it is more convenient to have private formula work done by an outside firm than to manufacture a product in one's own plant. R. Gesell, Inc., New York, have specialized in private brand work for years. They are in a position to buy, pack, store and ship such products as flea powder, salves, collapsible tube products and powders at reasonable prices by modern controlled methods.

Fatty alcohols are finding increased uses in industry. M. Michel & Co., New York 4, offer a new booklet describing their cetyl, oleyl and stearyl alcohols for which they are a basic source.

Trio Chemical Works, Brooklyn 6, N. Y., are making a long line of quality sanitary maintenance products which they offer to the trade. A descriptive booklet of their soaps, cleaners, waxes, polishes, insecticides, etc., is available upon request. Private brand work is solicited. Uncle Sam Chemical Co., New York 27, is another well known private brand house for deodorant blocks, waxes and insecticides.

Several appliances for the application of sanitary chemicals are offered in our advertising pages.

Mops are available from American Standard Mfg. Co., Chicago 8. Rochester Can Co., Rochester 9, N. Y., is in a position to furnish various types of cans and pails sold by janitor supply dealers. Independent Specialties, Chicago 21, is offering a novel and automatic solutionizer for dispensing detergents into wash tanks and dish-washing machines.

Pino Co., St. Louis 3, Mo., is strikingly featuring its "Pino Deodorant Blocks." Attractive color illustrations of their various blocks are shown. The blocks are said to be more economical and longer lasting because they are made from 100 per cent para on huge, modern power presses.

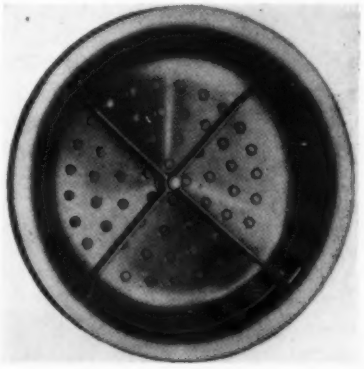
Monsanto Chemical Co., St. Louis, is presenting an interesting advertisement on their products eliminating sneezing caused by detergents. By adding from three to five per cent of their "MXP" or "Sterox CD" to detergents the cause of sneezing can largely be overcome. In addition to laying out the dust, these products add detergent value to a product. Immediate shipments can be made. Further data, samples and quotations may be had from the Phosphate Div., Desk B of Monsanto at St. Louis.

There are many other items of interest in our advertising. Those who skip these pages are missing important information on up-to-date raw materials and machinery.

New Self-Cleaning Urn

Franklin Metal Products Co., Chicago, recently introduced a new self cleaning sand urn that features a recessed perforated lid. By means of a concealed lever, sand can be sifted into the body of the urn, where it is stored. By moving the lever, scrapers inside the lid clean its bowl. The refuse remaining can then be dumped and the bowl refilled with clean sand. Another feature of the new self cleaning urn is a beveled safety edge instead of a ledge on which dirt or burning cigar or cigarette butts might accumulate or be knocked to the floor. Urns are of heavy construction; lids, triple chrome plated, are 20 gauge; bodies, 24 gauge. Lids may be purchased individually to be used with standard 10-inch diameter urns or as part of a complete unit.

Self-Cleaning Sand Urn.



Book on Soybeans

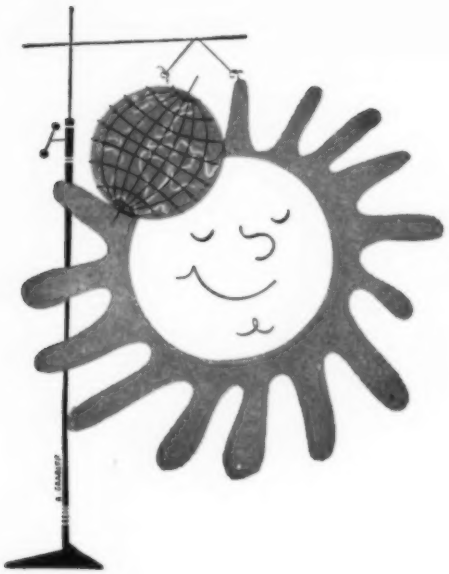
"Cracking the Soybean," a new book dealing with the history and uses of soybeans, was issued recently by Archer-Daniels-Midland Co., Minneapolis. Industrial applications of soyabean oil, including its use as a fixative for insecticides, are mentioned and illustrated in four-color photographs and drawings. Soyabean oil for edible purposes is also treated. Copies are available by writing A-D-M at 600 Roanoke Bldg., Minneapolis 2, Minn.

Issues Filling Catalog

A 24-page booklet containing information on tube filling, closing and sealing equipment was issued recently by F. J. Stokes Machine Co., Philadelphia. The booklet illustrates and describes tube filling and sealing equipment for such products as liquid soaps, cleaning compounds, disinfectants, pastes, creams and ointments. Copies are available from the company.

ADM Fatty Acid Chart

Archer - Daniels - Midland Co., Minneapolis, recently issued a new comparison chart of fatty acids. The chart, in the form of a filing folder, shows constants and compositions of 23 vegetable oils, plus all commercially available animal and marine oils and fats. In addition to containing the mean analysis of each product, the chart shows the range of analysis. Copies are available by writing the company at 600 Roanoke Bldg., Minneapolis 2.



we're not the sun or the soil...

but our oils almost have nature beat!

No, we're not Mother Nature. But we do have her a bit worried because our synthetic essential oils duplicate her products so closely and replace them so effectively. We know that you will be greatly pleased with the advantages these synthetic essential oils offer in low cost, price stability, and greater chemical and olfactory consistency. You're missing the boat if you haven't tried Geranium Synthetic No. 1086, Vetivert Synthetic L.G., Patchol, and others.

Greater Distinction through

Givaudan-Delawanna, Inc.

330 West 42nd Street, New York 18, N. Y.

Branches: Philadelphia • Boston • Cincinnati • Detroit • Chicago • Seattle • Los Angeles • Montreal • Toronto

New Electric Bagger

A new, all-electric, automatic, duplex bagging scale was announced recently by Richardson Scale Co., Clifton, N. J. The scale can accommodate gravity or power feed arrangements for bagging chemicals and other materials normally put up in open-mouth paper or textile bags. Designated "Model E-50 Duplex," the new bagger comprises two scales with a common bagging spout. It has a normal range of from five to 25 pounds and 25 to 50 pounds. Units of greater capacities can be furnished for special applications. The new model is capable of handling 24 10-pound bags and 18 25-pound bags per minute, speeds varying with types of material, method of feeding and sizes of unit weighing. Slip-on spouts are supplied for changing bag sizes as required. The machine is totally enclosed to provide dustproof operation.

Book on Colloid Chemistry

Colloid Chemistry, 2nd edition, by H. B. Weiser. Published by John Wiley & Sons, Inc., 455 pages, 6 x 9 inches, cloth binding, price $5.50.

This book is not written for the layman, but for those who have completed a general course in physical chemistry. The foundations, modern theories, and applications of colloid chemistry principles in industrial arts, agriculture and biology, constitute the text matter.

The book is divided into six parts. The introduction is concerned with the fundamentals of the colloidal state of matter, and sets forth the classification of colloids and definition of terms.

The first part, of six chapters, deals with adsorption at various interphases. Insecticides, and the detergent action of soap are treated in this group. Liquids such as insecticides must have the properties of wetting and spreading over the surfaces to be treated. High adhesion with the surface and low surface tension are prime requisites. Soaps are good detergents because of their emulsifying action on oils and greases. Requirements of soaps and the reverse treatment of wetting, i.e., waterproofing, etc., are considered in the applications of adsorption and wetting of solids by liquid.

The second section of ten chapters is concerned with the formation and properties of lyophobic and lyophilic sols. Formation by condensation and dispersion, purification, optical and kinetic properties, constitution, stability, electrokinetic and electrochemical properties are considered in turn. Three shorter sections follow, which cover gels, emulsions, foams, aerosols and solid sols from the standpoint of formation, structure, and general and the more specific properties.

New Hooker Compound

A new fluorine containing hydrocarbon, 3-Nitro-4-chlorobenzotrifluoride ($C_6H_3CF_3$'3-NO_2, 4-Cl') was announced recently by Hooker Electrochemical Co., Niagara Falls, N. Y. The compound is a thin oily liquid with an aromatic odor. The trifluoromethyl group is chemically stable, but the nitro group may be reduced and the chloro group may be replaced. The Compound has a molecular weight of 225.5; freezing point of —7.5°C.; boiling point of 222°C.; and specific gravity of 1.542. Technical data sheet No. 367 is available to describe the compound more completely.

Will Has New Lab. Lamp

A laboratory lamp with four interchangeable lamp tubes for long and short ultra-violet, white and north sky quality light is featured in laboratory equipment Bulletin No. 107, recently released by Will Corporation, Rochester, N. Y. In addition, the bulletin announces a new comparator set for Ehrlich urobilinogen determination. A portable, electric, direct-reading viscosimeter is also described. Copies are available on request.

New Schimmel Odor

"Osmodor Coeur de Rose 4146" said to be designed to provide a genuine rose odor in a new form currently is being marketed by Schimmel & Co., New York. The new product is not a finished rose compound, but rather a rose base with versatile applications, according to the company.

D & O Issues Catalog

A 48-page catalog and price list on its list of essential oils, aromatic chemicals, certified colors and related materials was issued recently by Dodge & Olcott, Inc., New York. Product sections open with sketches of scenes relating to materials produced and processed by the company.

INCO Corrosion Study

A new 44-page technical bulletin on the resistance of high nickel alloys to corrosion by sulfuric acid was issued recently by International Nickel Co., New York. Performance of over 30 different nickel bearing materials in a wide range of services is discussed. The bulletin contains 86 tables and 33 graphs and photographs. The bulletin, T-3, is available without cost through the company's New York offices at 67 Wall St.

New Automatic Sealer

A new, rotary type bag heat sealing machine, "Auto-Feed Speedsealer," was announced recently by Pack-Rite Machines, Milwaukee, Wis. The new completely automatic sealer was shown for the first time at the Packaging Show in Atlantic City, N. J., May 9-13. Bags are dropped from a filling machine onto a traveling conveyor belt and approach the "Auto-Feed" wing entrance. Chains, acting as guides, close the bag tops as they travel along the gradually tapered feed wing. Front and back surfaces of bag tops meet upon entering the preheater area. Since the chains are moving at the same speed as the bottom conveyor, side friction and backward tipping of the bags are prevented. The conveyor chains, gripping the bag tops, carry the bags through the preheater, making a foldover, if necessary, and through the heat-sealing rollings. The bags may then be discharged on a conveyor or chute, ready for packing for shipment.

The machine operates at various fixed speeds up to 860 inches per minute, or with variable speed drive to match existing conveyor equipment.

A folder illustrating and describing the new sealer has been issued.

Lukens Stainless-Clad Steel was used by Blaw-Knox Company in fabricating this fat-splitting column for Swift & Company.

Glycerides and fatty acids PROTECTED by Stainless-Clad Steel

Some of these storage tanks, and preparation tanks inside the plant, are Lukens Stainless-Clad Steel; built by General American Transportation Corporation.

in Swift's new plant

To utilize raw materials from its many plants, Swift & Company recently put this new industrial oil processing plant into production at Hammond, Indiana. Many of its products go into cosmetics, toilet creams, soaps and similar items, so protection against metallic contamination is vital. Lukens Stainless-Clad Steel helps provide that protection.

Fat splitting is done in a continuous, high-temperature hydrolysis unit, producing fatty acids which are high in quality and light in color. Since they come in contact with only the stainless steel interior surfaces of the clad steel tower, preparation and storage tanks, there's no metallic contamination to affect them.

Lukens Clad Steels—Nickel-Clad, Stainless-Clad, Inconel-Clad and Monel-Clad—offer you the protection of these *solid* corrosion-resistant metals with the economies of *clad* steels.

In each, a uniform thickness of the cladding material, usually 10% or 20% of total plate thickness, is permanently bonded to a steel backing plate. The extra-smooth sodium hydride finish makes equipment extra easy to keep clean.

Bulletins 255 and 338 tell you more about Lukens Clad Steels. For copies, write Lukens Steel Company, 446 Lukens Building, Coatesville, Pennsylvania.

CLAD METAL STEEL

LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

PRODUCTS AND PROCESSES

Soaps in Cutting Oils

A soap of unsaturated fatty acids such as ammonium linoleate, is added to mineral oils to improve their lubricating properties when these are used as metal-working lubricants and cutting oils. Ammonium, aluminum, lead, potassium, hydroxylamine, and trialkylamine soaps of linoleic, linolinic, and ricinoleic acids may be used similarly. Soc. pour l'ind. chim. a Bale, Swiss Patent No. 222,257; through *Chem. Abs.*

Ink Spot Remover

Solid potassium permanganate is pressed into small rods, which are moistened with dilute sulfuric acid and rubbed on the ink spot. The spot is next treated with hydrogen peroxide solution. L. Sudfield, Hungarian Patent No. 128,894; through *Chem. Abs.*

Detergent in Paste Form

A synthetic detergent is prepared by sulfating ethanolamides of higher fatty acids with sulfuric acid in the presence of a lower aliphatic alcohol. The resulting product is neutralized, and some of the water removed if desired to give a stiff paste. This has excellent cleansing properties. R. Greenhalgh and Imperial Chem. Industries Ltd. British Patent No. 573,524.

Nonionic Detergents

Readily soluble nonionic esters and ethers are obtained by condensing polymerized ethylene oxide with fatty acids and alkyl phenols, respectively. By this method any required chain-length and solubility can be achieved. The German "Emulphors O" and "A" and "Igepals G" and "W" are of this type. U. S. detergents of this class include "Glim," "Sterox AW," and "Triton X-100." Nonionic detergents do not form metallic salts and are not readily salted out of solution. They are thus completely stable to hard and sea waters, metallic ions, etc.

These detergents should become very popular as a class in view of their attractive properties. However, they will probably always be more expensive than the alkyl and alkyl aryl sulfonates, unless a cheap source of ethylene oxide becomes available. R. Leslie, *Manufacturing Chemist 19*, 499 (1948).

Amine Soaps

Soap prepared by mixing equivalent amounts of triethanolamine and oleic acid are practically neutral and have the property of being soluble both in water and in organic solvents. Some amine soaps are more lipophyllic, for example, those made with isopropanolamine are more readily soluble in fats and oils than in water. As compared with ethanolamine soaps, these show less darkening on storage, thus having more color stability. A. M. G. Rutten, *Soap* (South India) *1*, Nos. 8-9, 8-12 (1948).

Hard Water Detergent

Use of alkyl sulfates and organic sulfonates in hard-water soaps has not proved particularly successful. However, addition of carboxylic acid amides such as lauric or stearic ethanolamide, dimethyl lauramide, and lauryl lauramide, greatly inhibits precipitation by lime salts. British Patent 15,-971 to Procter & Gamble covers this development. *Perfumery & Essen. Oil Record 39*, 357 (1948).

Emulsion Saponification

In previous methods described for continuous saponification, emulsion saponification took place during passage through the mill. A new patent specification condemns the use of pans with live steam coils as being of poor mechanical efficiency in promoting the emulsification of the relatively large mass of fat and alkali liquor. A short initial agitation of fat with a suitable saponifying agent is followed by a quiescent period in which saponification is effected with the heat of reaction of the ingredients, followed optionally by a period of further agitation. Heat is preferably supplied to the fat and saponifying agent either before or during their passage through an emulsifying apparatus.

About three per cent of sodium chloride is added to the caustic liquor to lower the viscosity of the soap paste, making it more fluid during saponification. A continuous passage of ingredients is maintained and is termed "quiescent flow." Joseph Crosfield & Sons, Ltd., and R. V. Owen, British Patent No. 605,995.

Synthetic Toilet Cake

Synthetics alone, such as the fatty alcohol sulfates, defat the skin and are also objectionable because of rapid disintegration when made in cake form. A product which resembles toilet soap and has beneficial effects on the skin, with good keeping properties is as follows: Melt 15 grams of paraffin and mix with 10 grams of sodium dodecyl sulfate, 15 of kaolin, 10 of bentonite, 25 of starch, 20 of a 10 per cent gum tragacanth solution, and seven of milk casein. Perfume, extrude, and press into cake form. Waxes may also be used as hardening agents. Methyl cellulose may also be incorporated, usually in a proportion of 10 per cent. Novag Akt.OGes. Swiss Patent No. 228,769; through *Chem. Abs.*

Potassium Determination

Potassium can be determined on a semi-micro scale with good reproducibility by the "triple acetate" method which involves precipitating sodium as the sodium uranyl zinc acetate, and determining potassium indirectly by difference. E. W. Blank and B. Rotolo, *J. Am. Oil Chemists' Soc. 26*, 102-3 (1949).

Filled Detergent Cream

A mixture of 6000 parts of fatty alcohol sulfate with 4000 parts of mineral oil is stirred at 80° for two hours until there is five to 10 per cent weight loss. Then 2000 parts of kaolin or talcum are added as filling material, and 200-240 parts of essential oil. R. Beck, Hungarian Patent No. 130,972; *through Chem. Abs.*

Here's the easiest furniture polish in the world to make!

And an ACE of a Finish Producer Too!

Only three ingredients required—mineral oil, water and Nopco* 1248-X furniture polish base.

That's the tip off: Nopco 1248-X furniture polish base. No need for a complicated formula if you use Nopco 1248-X—*no need even for heat.* You simply add the oil to the base *at room temperature,* agitate thoroughly and add water.

If ever the saying "easy as falling off a log" was 100% pertinent, it is here!

And this is no case of gaining in one direction at the expense of another. For not only does Nopco 1248-X provide an extremely simple and economical method of obtaining a furniture polish, but the polish produced is of top notch quality, characterized by *high stability* and *freedom from stickiness and excessive oiliness.*

Minimum rubbing results in a uniform, glossy finish that both protects and beautifies. Write for details today.

NOPCO CHEMICAL COMPANY
Harrisen, New Jersey
Gentlemen:
Please send me full information about Nopco 1248-X Furniture Polish Base.
Name.....
Firm.....
Address.....
City..... Zone..... State.....

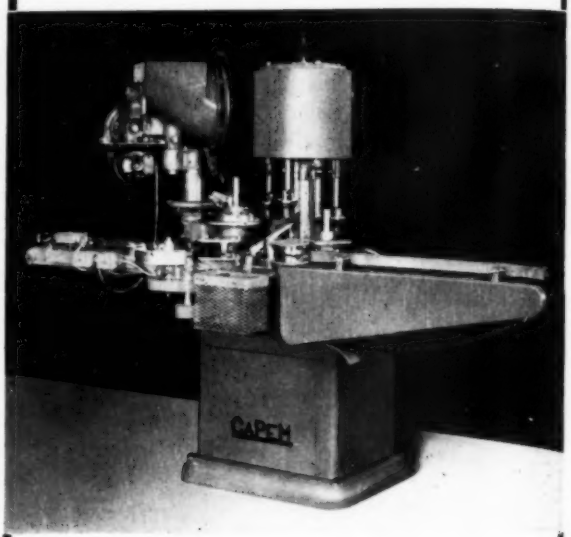
*Reg. U. S. Pat. Off.

NOPCO — EVOLVED THRU RESEARCH

NOPCO CHEMICAL COMPANY
Harrison . . . . . New Jersey

CAPEM

THE MODERN SCREW CAPPER



- Applies any type of standard screw cap or cover at speeds of 2000 tc 10000 per hour.
- Takes container from conveyor line, applies cap perfectly, and returns container to conveyor AUTOMATICALLY without intermediate handling.
- Handles bottles, jars, cans or jugs of any size or shape.
- Delivers a perfect, LEAKPROOF seal at low cost.
- Available in 1, 2, 4, 6 and 8 spindle models.

Write for prices and delivery.

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO 13, N.Y.

SOAP PLANT OBSERVER

By John W. McCutcheon

CLAD metals are coming into wider use in the soap industry as they become more easily obtainable. A few years ago a stainless clad crutcher would have been thought by most soapers to be an added expense of no intrinsic value. Today, however, this is not so since the soaper must equip his plant with crutchers that can be operated on a wide variety of materials. Where formerly the soap plant worked day in and day out on a straight alkaline soap, today it may be working two days a week on synthetic detergent slurries under conditions definitely requiring clad metals. The relatively small extra cost of having crutchers built of clad metal may be offset by economies in other directions.

The usual materials for clad metals in the soap industry are nickel, stainless steel, Inconel and Monel. Thicknesses usually run from 10 to 20 per cent, although almost any ratio is available. The exact type of stainless steel is important, too. For most work, #316 is satisfactory, but for higher temperatures it is better to use #317, containing three to four per cent molybdenum, or #318, containing "Columbium" (c.f. "Soap Plant Observer, *Soap & Sanitary Chemicals*, February, 1949). Lukens Steel Co., Coatesville, Pa., recently issued an excellent bulletin on the subject of clad metals for the soap industry under the title, "Product and Equipment Protection for the Soap Industry." Another, Technical Bulletin T-3, published by International Nickel Co., New York, appeared recently. It gives interesting diagrams and tables of metal resistance under varying types of conditions. For example, for Twitchell Fat Splitting, monel is favored over nickel or Inconel as shown by data in adjacent table.

One large installation of Monel for this process has been observed in successful operation by the writer.

A list of materials giving composition, trade name, supplier and main use is given in the November, 1948 issue of *Chemical Engineering*.

"Ni-Resist" (pronounced Ny-resist) 20 per cent "Ni Type" alloys have found use as filter plate materials for presses because they can be cast. The cast raises the price of the press between two and three times its cast iron value, but the results are very satisfactory. Bronze plates and frames cost about the same as Ni-Resist. Aluminum should be considered where fatty acids are filtered. Its cost is about 40 per cent higher than that of cast iron.

* * *

The final 1947 figures on production and sales of Surface Active Agents have been released by the U. S. Tariff Commission in Report No. 162. They do not differ substantially from the preliminary report released last September. The total 1947 production of 291 million lbs. represented an increase of 20 per cent over 1946. Deducting the sulfonated oils and salts of the fatty acids this represents a total production of 720 million lbs. on a 35 per cent active basis. It is becoming increasingly difficult, however, to obtain a true picture of the industry by comparing production either on a 100 per cent or 30 per cent active basis. The heavy duty detergents first introduced about two years ago had active contents approaching that of the light duty products. The present trend is to reduce active content to 20 per cent and under with the result that bulk retail sales have probably been underestimated in past analyses.

It is believed that the 1947 production for retail products probably was in excess of 500 million lbs. Consumer analysis reports, where reprerentative sections of a community are canvassed for their buying habits, indicate that the heavy duty synthetics have eaten up a good portion of the market formerly held by light duty detergents. On the other hand reports based on monthly inventory and sales analyses indicate that the heavy duty type synthetic detergents are not expanding at the expense of other groups, including soaps. Rather their advance represents the amount of increase enjoyed by all detergents. The discrepancy between these analyses requires further investigation.

* * *

The use of potassium salts in the potash soap industry may be expected to increase as new products become available at attractive prices. An increased number of inquiries on potassium chloride have been noted. The use of potassium carboxy methyl cellulose has been mentioned in this column, although to date, no outstanding use has been developed which would warrant plant scale production. In Europe, potassium silicates are finding a use as soft soap adjuncts. Recently, the availability of potassium tetrapyrophosphate has been noted. It is in plant scale production by Monsanto Chemical Co. at approximately 18c per pound. Water solubility is excellent.

Inco Corrosion Table

	Corrosion Rate	*Inches per year*
	Test 1 83 days	*Test 2 65 days*
	In liquid	*At liquid level*
Monel	.0025	.0026
Nickel	.013	.018
Inconel	.0050	.0050

PERFUMERS

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NEW!

Semi-Automatic

STRAIGHT-LINE VACUUM FILLER

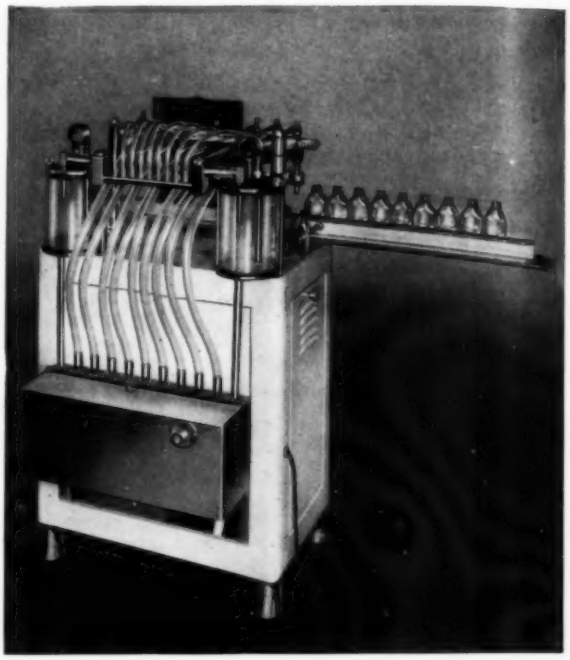

Photo of Rear view of the New Model B-49 Straight-Line Vacuum Filler showing set-up utilizing nine tubes for handling six-ounce containers.

Handles Any Size Container Up to GALLONS

REMARKABLE mechanical innovations introduce new automatic operation and controls for higher than ever standards of dependability. Handles any size container up to gallons by change-over from one size to another. The number of containers filled at a time and the rate of filling speed is governed by the size of the container.

EASY OPERATION—Illustration shows the feed bed loaded with nine containers while another nine containers are filling. When containers have filled, the operator trips a lever, automatically raising the filling head. With both hands free, he pushes all 18 containers on the feed bed to the right—the empty containers into filling position and the filled containers onto a chute or conveyor. The operator trips the lever back, lowering the filling head, and containers fill while the operator re-loads with empty containers and the cycle repeats. Approximately 4 to 6 cycles per minute is normal speed, resulting in a filling production of from 35 to 50 containers per minute.

AUTOMATIC CONTROLS—The automatic overflow system consists of two cylinders with gravity return to an automatic supply control tank shown near the bottom of the machine. The overflow cylinders empty automatically and operate alternately with the raising and lowering of the filling head. Thus, vacuum is maintained on filling tubes at all times.

The product can flow to the polished sanitary supply tank by gravity and the control valve will admit flow as required by speed of filling. The tank is equipped with a drain valve for easy flushing and quick cleaning at the end of a production run.

The new Model B-49 Straight-Line Vacuum Filler embodies the vacuum principle that has popularized U. S. Bottlers' Filling Machines the world over. Every construction detail is built of latest approved materials and the operating mechanism is designed with a minimum of working parts for dependable uninterrupted production. Filling stems are exactly the same as built into our fully automatic vacuum fillers. Operated by ½ h.p. 110-220 volt motor.

For further information, write us for the Model B-49 Bulletin.

U. S. BOTTLERS' MACHINERY CO.
4019 N. Rockwell Street **Chicago 18, Ill.**

In the scramble of the soap industry to get into the synthetic detergent field, little attention has been paid to the value of sequestering agents of the poly amino carboxylic acid type. So far, investigations have been confined chiefly to applications in the liquid soap field. It is possible that with price adjustment these products could become serious rivals to the complex phosphates as dry additives to soap. At least one company has given this serious consideration. Recent activity in this field includes the new liquid product "Perma Klees," (Refined Products Corp., Lyndhurst, N. J.)," the expansion of the "Nullapon" line (General Dyestuff Corp.) to include a liquid, "Nullapon BFC," and the introduction of a tri-valent iron sequestering agent, "Versene Fe-3" (Berswerth Chem. Co., Framingham, Mass.). "Methocel," a product of Dow Chemical Co., Midland, Mich., is now procurable in a fine free flowing powder which requires less cold water to put it into solution than the former fibrous type. A brochure on this new form material is available from Dow in a bulletin "The New Methocel Powdered" which thoroughly covers the applications, properties, and types of product available. The writer has noted exceptional foam stability characteristics which enhance its value as a shampoo additive.

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Velsicol Chlordane Data

Velsicol Corp., Chicago, recently issued three bulletins dealing with "Velsicol 1068" chlordane. The first bulletin contains a list of all known applications where chlordane formulations can be used to control insect infestations. Recommended concentrations are given opposite the name of each insect. Two technical bulletins, 215 and 216, cover carriers and diluents for chlordane dust base formulations and chemical analysis of technical chlordane and chlordane formulations, respectively.

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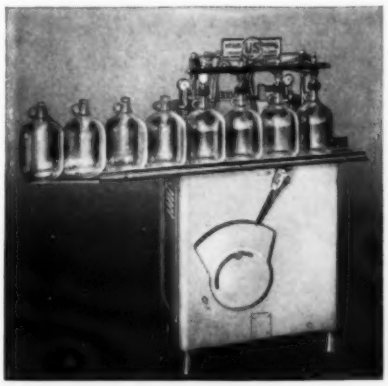
Tall Oil in Industry

National Southern Products Corp., New York, recently issued an eight-page folder which is a literary survey on the use of tall oil in various industries.

U.S. Bottlers Filler

A new, semi-automatic straight-line vacuum filling machine that is designed for quick change-over from containers ranging in size up to one gallon, was announced recently by U. S. Bottlers Machinery Co., Chicago. The number of filling tubes varies from four to nine depending on the size of the container being filled. A lever on the front of the machine drops the tubes to filling position, when the containers are filled the lever is moved in the opposite direction and raises the filling heads. Only the weight of the filling tubes is required to vacuum seal the containers that are filled. When the containers are filled, the operator pushes them to a feed bed at one side of the filler and replaces them with a new set. Gallon containers can be filled at the rate of eight to 10 per minute, while smaller containers can be filled at normal speeds up to 50 per minute. The automatic overflow system consists of two cylinders that empty automatically into the supply control tank. The two cylinders operate alternately with the raising and the lowering of the filling heads and thus vacuum is maintained on filling tubes at all times.



New U. S. Filler

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New Booklet on "Ultrawets"

A forty-page, two-color, illustrated booklet dealing with its line of surface active agents, known as the "Ultrawets," was issued recently by the chemical products division of Atlantic Refining Co., Philadelphia. What the "Ultrawets" are (water soluble surface active agents belonging to the group of organic compounds called alkyl aryl sulfonates); the various forms and composition of the series; solubilities; performance tests; detergency; appplications, and services the company can render are among the topics covered in the booklet, which concludes with an appendix dealing with cotton and woolen detergency tests and bibliography.

—— ♦ ——

Booklet on Whitening Agent

A new, 27-page technical bulletin describing the physical and chemical properties of the fluorescent compound, beta - Methyl Umbelliferone, used as a whitening agent in soap and soap products was issued recently by the chemical division of Koppers Co., Pittsburgh. A derivative of coumarin or 1, 2-benzo-pyrone, beta-Methyl Umbelliferone undergoes chemical reactions typical of both the phenolic nucleus and the lactone linkage. The blue fluorescence exhibited by the compound suggested its use as a masking agent in materials having a slightly yellowish cast. Data and graphs showing the ultra-violet and infrared absorption spectra, as well as the fluorescence spectra of the compound, are included in the booklet, along with 46 references to technical and patent literature. Copies of technical bulletin No. C-9-111 are available.

—— ♦ ——

Toxaphene News Digest

Toxaphene in insect control is discussed in the latest issue of *Toxaphene News Digest*, recently issued by Hercules Powder Co., Wilmington, Del. The use of the material for controlling a wide variety of agricultural and household insects is discussed in the four-page, illustrated bulletin which is available on request.

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Bulletins On Spraying

Three bulletins on household spraying have been issued recently by National Sprayer & Duster Association, 4300 Board of Trade Building, Chicago. The three bulletins are titled "Spray Or Dust to Control Household Insects," "Spray for a Fly-Free Home" and "Prevent Moth Damage by Spraying." The bulletins contain information on the type of sprayer as well as the kind of spray to use against specific household insects.

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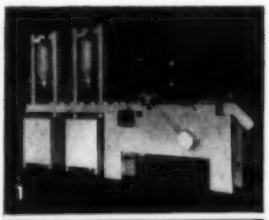
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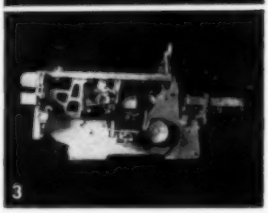
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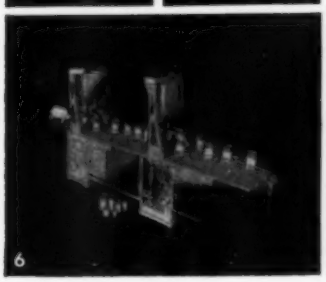
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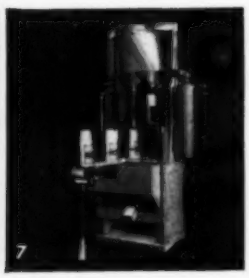
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PATENTS, TRADEMARKS AND COPYRIGHTS

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel.

No. 2,466,632, Carbon Remover and Metal Surface Cleaning Composition, patented April 5, 1949 by Ben Borus, St. Louis, assignor to Shell Development Company, San Francisco, a corporation of Delaware.

A cleaning composition comprising a mixture of:

Kerosene	12
o-Dichlorobenzene	40
Diethylethanolamine oleate	6
Diethylethanolamine	20
Ethylene glycol monobutyl ether	10
Water	12

No. 2,466,925, Process of Making Metallic Naphthenates and Soaps, patented April 12, 1949 by Oscar C. Brauner, Boston, assignor, by mesne assignments to Darworth, Inc., Simsbury, Conn., a corporation of Connecticut.

In the fusion process of preparing metallic salts of substantially water insoluble organic acids, wherein the reaction is brought about in a molten mixture of the organic acid and the metallic compound, the improvement which comprises the step of adding a preformed mixture of a basic nitrogen compound selected from the class consisting of ammonia, amines, basic nitrogen heterocyclic compounds and quaternary derivatives of the three preceding types, with a metallic compound capable of forming a Werner complex with said basic nitrogen compound, to the molten acid while maintaining the acid at a temperature above the melting point of the metallic salt to be formed.

No. 2,467,295, Stabilization of Soap, patented April 12, 1949 by Elmer W. Cook, New York, N. Y., assignor to American Cyanamid Company, New York, a corporation of Maine.

Soap stabilized against discoloration and rancidity by the presence therein of stabilizing amounts of a biguanide salt of mercaptobenzothiazole, said soap being an alkali metal salt of a fat acid.

No. 2,468,068, Mildewproofing Composition Containing Copper Naphthenate and Bis—(5-Chloro—2—Hydroxyphenyl) Methane, patented April 26, 1949 by Robert E. Horsey, Harrington Park, N. J., assignor to The Givaudan Corporation, a corporation of New Jersey.

A novel composition of matter suitable for rendering textile material normally subject to attack by fungi during use resistant to such attack, comprising bis — (5-chloro-2-hydroxyphenyl) methane and copper naphthenate.

No. 2,468,592, Insecticidal Composition Containing Chloralimines, patented April 26, 1949 by Stephen C. Dorman, Berkeley, Calif., assignor to Shell Development Company, San

PHENYL ETHYL ALCOHOL
AMYL CINNAMIC ALDEHYDE
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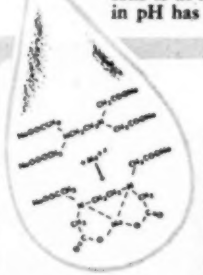
NEW, POWERFUL SEQUESTRANT VERSENE Fe-3*
(Inactivates Trivalent Iron)

VERSENE Fe-3* does more than soften water. It actually inactivates troublesome trivalent iron as well as calcium, magnesium and other metallic salts. Until VERSENE Fe-3 was developed there was no really satisfactory sequestering or chelating agent for ferric iron.

At pH7, 10 cc of VERSENE Fe-3 sequesters 167 mg. of ferric iron plus 158 mg. of calcium. At this pH it is nearly 10 times more effective in sequestering trivalent iron than at pH12. Maximum effectiveness on alkaline earth ions is at about pH9 and a further increase in pH has little additional effect.



VERSENE*
(REGULAR)

Regular VERSENE is an exceptionally versatile product for the Soap Industry. It is chemically known as Ethylene diamine tetra acetic acid tetra sodium salt. Versene does the following things with great effectiveness.

SOFTENS WATER . . . without the formation of precipitates. It forms soluble non-ionic compounds with alkaline earth and other ions such as ferrous ions which cause hardness in water. VERSENE is the only sequestering agent that can be manufactured into soap and remain in it as a water softener without decomposition.

CLARIFIES LIQUID SOAP . . . increases foam and rinsibility. Eliminates precipitates by removing interfering metal ions through formation of inactive and stable complexes of VERSENE.

ANTI-OXIDANT . . . for fats, oils, soaps, fatty acids, and other organic materials. Minute amounts of VERSENE act as a preservative and prevent rancidity.

DISSOLVES GREASE AND FOOD DEPOSITS . . . acts as a buffering agent. Saponifies fats. "Solubilizes" and partly hydrolyzes proteins. Provides two-way cleansing action.

PURIFIES ORGANIC MATERIALS . . . Organic materials contaminated with metals may be purified by the addition of small quantities of VERSENE. The offending metals are complexed and their ion activity reduced. The complex compound may in most cases be easily removed from the organic material thus insuring a higher grade product.

Regular VERSENE is available either as a pale, straw-colored aqueous solution or as a dry, white powder.

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BERSWORTH CHEMICAL COMPANY
Framingham, Massachusetts

Francisco, a corporation of Delaware.

An insecticidal composition comprising a carrier and an N-substituted chloral imine toxic agent having the general formula

$$Cl_3C—C(R_1)=N—R_2$$

wherein R_1 is selected from the group consisting of hydrogen, lower alkyl and substituted lower alkyl radicals, and R_2 represents a radical chosen from the group consisting of aliphatic hydrocarbon, aromatic hydrocarbon, alicarbocyclic and heterocyclic radicals.

BIDS & AWARDS

(*From Page 65*)

cents; R. M. Hollingshead Corp., Camden, N. J., 14 cents; Fischer Industries, Cincinnati, 7.63 cents; Clifton Chemical Co., New York, 8.25 cents; Peck's Products Co., St. Louis, 6.9 cents; Knoxall Corp., Indianapolis, 13 cents; Chicago Sanitary Products Co., Chicago, eight cents.

Aluminum Soaps Additives

Many additives have pronounced and manifold effects on the behavior of aluminum soaps in hydrocarbons. Some additives accelerate the formation of jellies, others retard it. Some thicken the jellies, others liquefy them. The mechanism of the action of additives is probably manifold also. G. H. Smith, L. B. Rogers, and K. J. Mysels, *J. Am. Oil Chemists' Soc. 26*, 135-38 (1949).

MARKET

(*From Page 63*)

in recent weeks, a few declines were registered in recent days, as against a single advance, that on menthol, which has risen to $10.50. Bergamot and lavender oils have shown recent declines of 15 and 10 cents per pound, respectively.

Measuring Oil Color

A spectrophotometric method is described which permits an accurate estimation of the color of oils from transmittance values at three wave lengths. The color may be expressed in terms of tri-stimulus values or simply as visual transparency, and is independent of the arbitrary color systems in wide use at present. Expression of photometric values in terms of a less arbitrary standard than that of Lovibond values or FAC standards seems a more desirable procedure. A. K. Presnell, *J. Am. Oil Chemists' Soc. 26*, 13-15 (1949).

COSMETIC CHEMISTS

(*From Page 49*)

types of emulsions.

In his paper "Measurement of Odors in the Cosmetics Industry," Louis C. Barail, U. S. Testing Co., New York, described the Osmometer, a unit designed to measure all odors under the same physical conditions. The principle of the apparatus is the elimination of variables such as humidity, impurities, parasitic odors, changes in rate of air flow and pressure of the air circulating in the apparatus.

Bacteriostatic activity, potency and nomenclature were included in the paper, "A Simplified Method for Determining the Approximate Bacteriostatic Potency of Chemicals," by

Arthur R. Cade, Givaudan-Delawanna, Inc., New York. Following an introduction dealing with nomenclature and bacteria in general, an outline of various test methods employed in determining bacteriostatic action was presented.

The concluding paper "Cosmetics from a Medical Viewpoint," was presented by Austin Smith, of the American Medical Association. Cosmetics are considered as "preparations applied to the skin or appendages in order to alter its appearance, to protect it, to beautify or promote attractiveness." Dr. Smith reviewed the psychological effect of cosmetics and discussed the objectives of the American Medical Association's committee on cosmetics.

During the business meeting, Dr. Marston T. Bogert, recipient of the 1948 Honor Award offered by the society, was introduced to the assembly. The announcement was made that nominations for candidates for the 1949 award should be submitted before Aug. 1, 1949.

A recommendation was made that the society adopt a systematic classification of odors, and request publishers of scientific journals to include odor data in reports on the preparation of new organic compounds. Action on this motion was delayed, pending further investigation by a commitee.

SOAPS VS. SYNTHETICS

(*From Page* 49)

performs several functions, the first of these being to neutralize the acidity of the solution. Secondly, he continued, if soft water is used, the soil in the linen imparts a certain amount of acidity to the water, which the alkali serves to re-soften. Finally, the alkali deflocculates or breaks up the soil, which can be held in suspension by the soap.

It is always desirable to have a water softening element in the laundry and the alkalis perform such a function, Mr. Hahn told the laundrymen, adding that the alkali reduces the amount of soap required to do the cleaning job. They work together, he said, the alkali supporting the soap and justifying the old rule-of-thumb maxim, "The dirtier the soap, the more alkali is needed."

Asked if synthetics can be built, Byron Marsh of Armour replied that synthetics alone will not do the job. Being neutral, he said, they contribute no alkalinity to the wash which can only be achieved by adding alkali builders. Synthetic detergents will perform better if polyphosphates are added, he stated.

The synthetics, he explained further, are effective over a wider range of temperatures than is soap. Referring to the manager who stated that he could not get grease out of table linens, Mr. Hahn pointed out that, in removing heavy soil, use of TSPP or the silicates is very necessary. Pyrophosphate, he declared, is one of the best emulsifiers available.

This brought up a question about the loss of tensile strength, presumed by many to be due to use of various alkalis. Mr. Miller of Procter & Gamble recalled that it has been asserted that almost one-third of the tensile strength loss is due to the rinsing operation.

What is needed, Mr. Marsh of Armour observed, is a study of tensile strength losses under controlled, scientific conditions, perhaps by the American Institute of Laundering, at Joliet, Ill. Such an investigation, he declared, might determine whether the loss is due to the use of synthetics or to other materials.

The question, "Why is tallow chip soap not suitable for blanket washing?" was answered by Mr. Miller, who replied that if the blanket is made of pure wool, it should not be washed in a high temperature solution.

"But, if you use tallow soap in cold water," he continued, "you do not get the full effect of the soap. And, if the temperature of the rinse water is high, you will get odors and other undesirable results. Your best course would be to use a low titre soap or a synthetic."

Whether liquid soap is more economical to use than the powder form or vice-versa is a highly debatable question, Mr. Miller admitted when this question was raised. Generally speaking, he said, putting soap in the dry form directly into the wash wheel is more expensive than adding it as a solution.

Advantages in using powdered soap include the saving in space needed for a tank to hold liquid soap, the elimination of pipe lines, the saving of steam, the reduction or avoidance of accidents resulting from spilling solutions on workers or the floor. The dry, powdered soap should, however, be weighed out, not just scooped in, he cautioned. If too much is used when the soap is weighed out the overage would be only a matter of ounces. On the other hand, if liquid soap is used, half a bucket might be added, where only a quarter bucket is required. Summing up, he declared the user is "better off with a dry product and in the long run will find that through its use costs will be lowered."

Attention was also called to the availability of machines which automatically feed liquid soap into the washer in the right proportions.

The laundering of colored linens, which are coming into use in hospitals in conformity with new theories regarding their therapeutic value, was also discussed. One manager remarked that stains on colored linens cannot be removed completely and traces remain as brownish spots on the linens. It was pointed out on the other hand that some medicine spots cannot be wholly removed from white goods.

At an earlier session of the hospital laundry managers another soap man, Philip Deegan, Chicago service manager for H. Kohnstamm & Co., New York, spoke on future developments in the laundry field. His survey and forecast covered both equipment and supplies, including synthetic detergents, their characteristics and performance for different purposes.

Among exhibitors at the hospital trade show held in connection with the convention, were Hild Floor Machine Co., Chicago, Hillyard Sales Co., St. Joseph, Mo., Midland Laboratories, Dubuque, Ia., Vestal, Inc., St. Louis, Mo., Bristol Laboratories, New York, Diversey Corp., Chicago, Walter G. Legge Co., New York, Huntington Laboratories, Huntington, Ind., and Wyandotte Chemicals Corp., Wyandotte, Mich.

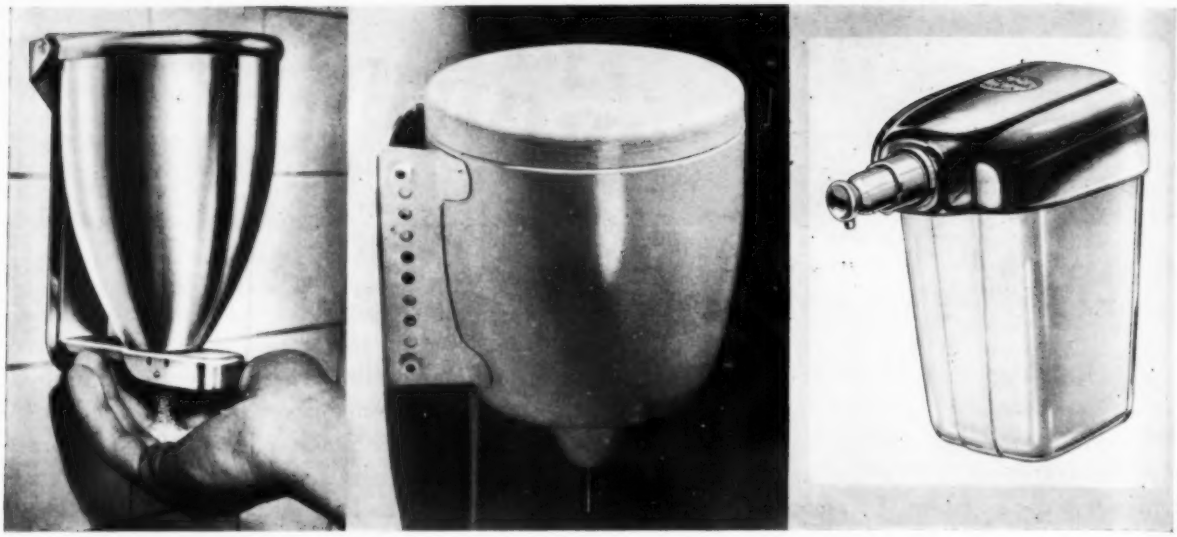
SANITARY PRODUCTS
A SECTION OF SOAP

FLOOR wax activities of the Federal Trade Commission are to be dropped! For two months or more, this tip has been buzzing over the grapevine in Washington. All planned activities in the direction of waterproof and non-slip claims will be quietly filed for the time being, we have been informed. Naturally, we hope that this is true. And in view of the widespread and sincere efforts being made within the industry to solve both the problems of slipperiness and the effects of water on ordinary floor waxes, we feel that such a move at this time would be wise. That there are certain characteristics of a waxed walking surface which cannot be changed and that such surfaces cannot be made wholly foolproof and safe under all conditions, we believe is obvious. But efforts in this direction have made much progress. Eventually, the problem will be solved if industry research is permitted to continue without interference. Possibly this is a factor which the FTC might have had in mind if the report of its decision to withdraw from this activity at this time is true. The industry knows on which side its bread is buttered. In its own interest, it will come up with a reasonable solution of the problem if given half a chance.

IF recent observations are a criterion, the aerosol method for the application and use of innumerable products is due for wide expansion over the next few years. Each new application of the aerosol principle seems to suggest several others. In the field of insect control and other sanitation features with which we are concerned alone here, aerosols are easily the center of new interest right now. In addition to the usual insecticides and deodorants, the application of lacquers and paints, floor waxes and finishes and other polishes, glass cleaners, and a host of allied products is attracting wide attention. Naturally, the matter of competitive cost is an important factor, but this obstacle is gradually being removed. No specialty manufacturer or marketer can afford not to keep one eye cocked on new aerosol developments in the months ahead.

HOLDING its first meeting under the new sectional set-up, the National Association of Insecticide & Disinfectant Manufacturers recently completed one of the most successful convention programs in its thirty-five year history. With its entire scheme of activities broadened and sectionalized, this old, well-known association has even gone so far as to change its name. To describe more accurately the new scope of its activities, the name, Chemical Specialties Manufacturers Association, has been adopted. In addition to its insecticide and disinfectant activities over the years and which continue, sections giving full attention to floor finish specialties, to soap and detergent specialties, and to the growing field of aerosol specialties have been set up, each with its own elected chairman who automatically is a member of the board of governors.

Not only has the old NAIDM changed its name and set-up to attract new members manufacturing all sorts of chemical and sanitation specialties, but the change was also dictated by the needs of many of those who have been members for some years. The new CSMA plans no incursion into the general soap field with its new section, but will aim its activities to serve mainly the producer of maintenance and sanitary cleaning specialties which dovetail closely into other sanitation maintenance materials. Plans for expansion in services are enthusiastic and numerous as the newly revamped association heads into its thirty-sixth year.



Left to right: New "Powdurn" dispenser made by American Dispenser Co., New York; new industrial powder dispenser of Presto Mfg. Co., St. Paul, (center); new lather dispenser made by Bobrick Mfg. Corp., Los Angeles, is at extreme right.

SOAP DISPENSERS

By Dr. E. G. Thomsen

Part I

THE employment of soap dispensers in public wash rooms, for industrial installations, in clubs, business places, etc., continues to grow at the expense of cake soap. Hotels, tourist courts and some other users still buy large quantities of small individual cake soaps, but much of this market for soap use outside the home has gone over to mechanically dispensed soap during recent years. The chief favorable features of modern soap dispensers are economy in soap use, foolproof operation, easy installation, durability, and attractive yet inconspicuous appearance.

Much ingenuity has been shown in the design and development of new type dispensers, and the number and variety of new models is constantly increasing. These are offered to dispense liquid, powdered, solid cake and paste soaps. Not only are soaps of various compositions handled but sulfonated oils, wetting agents and cosmetic lotions are dispensed as well.

Incidentally, among the various products that are used for cleansing and beautifying the hands, we often find abrasive and metal corroding substances included. It is necessary that a proper type dispenser be used to withstand any action of abrasion or corrosion and including any action on leather or rubber washers and gaskets when they are used. Numerous troublesome defects have been traced to insufficient attention to such details.

Before we consider the dispensers themselves in greater detail, some comments regarding the soaps used in them are in order. Under the stress of keen competition and since the soap is usually supplied free to the public, there is a natural tendency to cheapen it considerably. And since it is such a simple matter to water or dilute liquid soap, the type most generally used, one at times finds a very good dispenser delivering a soap that is low in anhydrous soap content and otherwise of poor quality.

We quote from a private communication from one of the leading makers of liquid soap dispensers on this troublesome problem in connection with liquid soap use. Our correspondent* says: "I disagree with a writer who recently said in *Soaps and Sanitary Chemicals* that 7 per cent liquid soap should be used in dispensers for public schools, 10 per cent in public institutions and public wash rooms, 15 per cent in most private institutions and 20 per cent for heavy duty. The federal specification for liquid soap is 15 per cent and this is the minimum percentage soap in our experience that produces a satisfactory, economical hand cleaner. A 20 per cent should be used in hard water districts and for heavy duty purposes. A 10 per cent liquid soap uses up more dollar value than one containing 15 per cent, as proportionately more is used. Our tests indicate that one gallon of 15 per cent or 20 per cent liquid soap (depending upon where it is used) can wash the hands of approximately 3000 persons. In showers, a gallon of 20 per cent soap is sufficient for 800 washings."

This statement is borne out in

* Martin J. Peters, Moore Bros. Co., New York.

other directions. Not only is a low percentage soap less economical, because the user just punches the dispenser more often, but it is annoying to the user and helps to create ill will and increase dispenser breakage.

While liquid soap is the type most often stretched, we find similar conditions prevailing in connection with use of powdered soaps. In this case, cheap fillers like talc or vegetable residues are used to cut down the soap percentage, until the hands are often covered with a smeary mess instead of the fluffy lather a user looks for. Some sophistication may be quite all right for mechanics' use when an abrasive is used, but excess fillers are not recommended for incorporation in soaps for use by the general public. Paste soap, too, may be cheapened, but its use is so limited one hears few complaints.

Another detail regarding the composition of soap is the sensitivity of some of the many skins it contacts. Many persons develop a dermatitis by the constant or over-use of liquid soap. To overcome this, some manufacturers replace the usual coconut oil from which liquid soap is normally made with other vegetable oils. It is important to control the alkalinity of these soaps, for too great a percentage of free alkali can be quite harmful. Care must also be observed in the use of abrasives and builders with powdered or paste soaps. It is not good judgment to use high percentages of soda ash, trisodium phosphate, sodium metasilicate or other high pH, alkaline salts. Milder ones like borax and the polyphosphates are safer. Some powdered soap manufacturers cut down the percentage of pumice, sand or silicas with vegetable abrasives like corn meal, ground corn cobs or sugar beet marc.

It is of moment, then, that soap dispenser manufacturers and especially those who do not make or handle their own brand of soap, give attention to the quality of soap sold for and used in their dispensers. The dispenser suffers undue criticism at times because of the wrong type or poor quality soaps used.

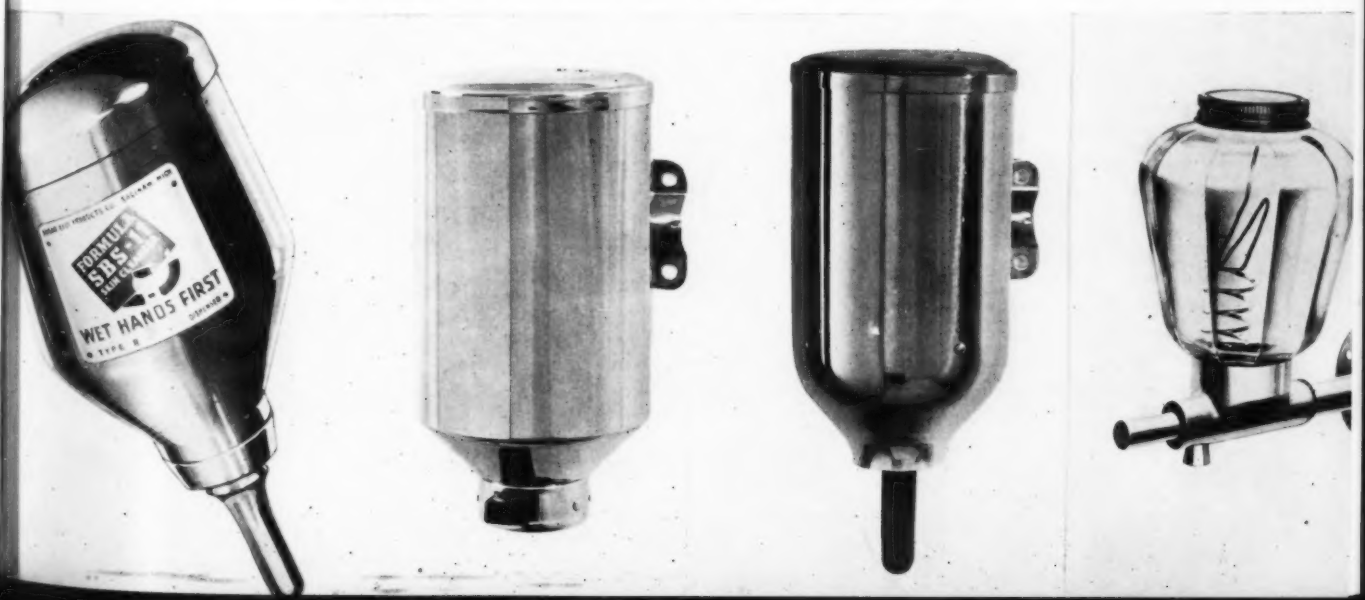
A discussion of the trend in types, and models on the market . . . their advantages and shortcomings . . . paste and powder types . . . liquid types next month

In discussing the soap dispensers themselves, we will classify them according to the form of soap used in them and point out specific refinements of certain prominent makes. The field is so large we can not cover all the dispensers on the market, although we have tried to contact most of the leading manufacturers in preparing this article. We will consider the dispensers in this order:—paste dispensers, cake soap dispensers, powder dispensers and liquid dispensers, including the lather type. Since liquid soap is used in greatest volume and there are more types of dispensers for this soap, our discussion will be of necessity devoted largely to liquid soap dispensers.

For dispensing paste soap the Loyal Paste Soap Dispenser made by Royal Soap & Chemical Company, Los Angeles, is frequently advertised. This compact dispenser is sturdily built, emits the paste soap in economical portions and is foolproof. It is priced reasonably, considering its merits. The dispenser is composed of polished aluminum and has but one moving part. A turn of a crank along its right side assures a rapid, efficient non-clogging ejection of a sufficient quantity of soap to cleanse the hands satisfactorily. A disadvantage of this type dispenser is that paste soap is not as generally available as liquid and powdered types.

A type of cake soap dispenser that was used to some extent in older Pullman cars carries a cylindrical piece of soap with a perforation lengthwise through its diameter. On the top there is a ridge which fits into the crank mechanism that revolves the cake. Knives at the bottom scrape off the desired amount of soap as the crank on the top of the dispenser is turned. These dispensers are extravagant in use of soap, the soap is slow to dissolve. Consequently they are not seen as

Powder dispensers below are made by Sugar Beet Products Co., Saginaw, Mich., Federal Tool Corp., Chicago, (center two); Palmer Fixture Co., Waukesha, Wisc.



Above: New powder dispenser made by Bobrick Mfg. Corp.

generally today as they were ten years ago.

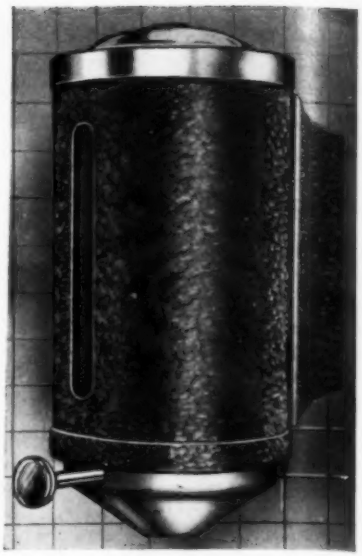
A dispenser operating with a solid bar of soap employed widely today is that produced by the Voorhis-Tiebout Co., Red Hook, N. Y. This is a sturdy all-metal dispenser which takes a special shaped bar of toilet soap held in position against the grinding edge by a spring. The crank is located on the side and its operation, in contrast to older types, liberates only small quantities of finely pulverized soap particles which are quickly soluble in ordinary hand washing. Although quite economical, they have the disadvantage of being usable only with the soap supplied by the manufacturer of the dispenser due to the shape of the bar and the character of the soap.

NEXT to liquid soap, powdered soap is the type used most widely in dispensers. One finds a variety of makes of powdered soap dispensers being installed. These mechanisms have gained increased acceptance through the years and are preferred to liquid dispensers by some maintenance personnel, especially in factories. It is a bit more troublesome to fill them than the liquid dispensers if bulk soap is used. To overcome this objection some soapers package the powder or granulated soap in packages from which soap may be easily poured into the storage chambers of the dispensers.

Among the leading manufacturers of powdered soap dispensers we find Sugar Beet Products Company, Bobrick Manufacturing Company, G. H. Packwood Mfg. Co., American dispenser Company, Federal Tool Corporation and General Manufacturing & Engineering Co.

Sugar Beet Products Co. has been aggressive in promoting the use of their dispensers for portioning out powdered soap. This company also features its own hand soap or skin cleanser which is designed to preserve normal skin health, even under frequent washings. Their Type R chrome plated, sturdy shell dispenser possesses mounting bracket and steel shell solidly built to withstand long, steady use. The soap is discharged from a feed mechanism in a ring shape on the user's hands. This results in a thin layer of soap that dissolves rapidly for quick action and prevents waste of soap. The feed mechanism has a four-way adjustment that delivers the desired portion of soap. A drip seal deflects the water from the wetted hands and away from the soap dispensing opening to prevent clogging. All working parts are easily removable from the compact assembly. The soap cannot be removed from the trip of the dispenser for a screen prevents this and at the same time permits proper flow of the powdered soap. Other features are easy maintenance, a theft-proof top, a downstroke feed and an agitator activated within the shell as the soap is used.

Federal Tool Corporation of Chicago, manufactures several models of powdered soap dispensers. Their Model M-3 comes in polished chrome and is recommended for installation in all types of wash rooms, including the home laundry and kitchen. It has a wide opening top for easy filling and is closed by an anchored cover. The discharge valve is a non-clogging push-up type. Its capacity is 1¼ quarts, liquid measure. The Model #4 is also made of polished chrome. The push-up type discharge valve is molded from plastic. A six-pronged agitator activated by this valve prevents packing and clogging and facilitates equal quantity discharge of the soap. Individual name plates are available for these dispensers. This company also features two transparent plastic dispensers for powdered soap. The larger has a quart capacity, the smaller holds a pint. These are claimed to be inexpensive, strong, long wearing, light in weight and smooth operating. The valves do not clog and heavy wall brackets afford direct mounting to walls or pipes. The smaller, newer, inexpensive one is especially designed for service station and garage use. It is light in weight yet built strongly for long life service.



The Ace Dispenser Co., Buffalo, lock-to-wall powder dispenser.

G. H. Packwood Mfg. Company of St. Louis is well known as the maker of Pax dispensers and soap. Included in their line of dispensing equipment, the "Ob-Ser Vision" powdered soap dispenser is offered under a specification that includes 22 detailed requirements to pass inspection for industrial and office installations. Included in these are such features as large capacity, rugged design, easy positive operation, economy, ready maintenance, tamper proof construction, non-bleeding details and sanitation. This dispenser comes in two sizes, contains a transparent sight window, is constructed of chrome plated steel and contains a minimum of moving parts. The Pax dispenser is suitable for distributing all brands of free flowing soaps and other skin cleansers. Pax also makes plastic dispensers.

The "Powd-urn" is offered by American Dispenser Company, New

Moore Brothers Co., New York, have developed this tilt-type powder dispenser that features a clear glass globe. The tilting action is said to prevent coagulation of powder and consequent clogging.

York. This product requires no ratchets, gears or agitators to operate it. The whole container rocks back and forth, thereby shaking the powder into whichever hand operates it. No caking of the powdered soap is possible as no moisture can enter the container. A steady flow of soap is impossible. The apparatus is fastened to a separate wall plate. It is hinged at the top, thus permitting the bottom to swing in and out to cause agitation. A snap lock prevents tampering with contents. The dispenser is compact, made of chromium-plated brass and stainless steel. No loose parts can be pilfered nor can anything rust or corrode. It is unnecessary to remove any screws to clean it.

Bobrick is a well-known name for all types of soap dispensers. Their New Model 31 powdered soap dispenser distributes soap simply and without much effort. It is made from a square type white hard-baked enamel, pressed steel body and stainless steel top and plunger. Any kind of powdered soap is measured out by an inward pressing plunger that delivers a definite amount of soap and at the same time agitates it. A short protruding spout prevents wet hands from contacting the dispeasing mechanism.

General Manufacturing & Engineering Company of Chicago recently announced their new type powdered soap dispenser. It consists of a metal wall bracket type that is removable for refills. Their "Bantam" is filled with a throw-away cardboard soap container which measures 3″ in diameter by 6″ high. Its bottom is made of metal and the top is open but closed with a threaded cap. To fill this dispenser, it is removed from the wall bracket and inverted. A cardboard cylinder of soap is slipped into its chamber, the cap is removed and the dispenser screwed into its cylinder's threads. As the soap is used up, new refills are used. Among other features of this dispenser are included a shutter type valve, grate type agitator and moisture proof protection.

Ace Dispenser Company of Buffalo has announced new types of powdered soap dispensers of durable steel construction designed for heavy duty use. (These are offered in place of former model D-6). The newer models for one pint dry measure and larger sizes for factory use are equipped with heavy plastic slit to observe contents and wide locking cap for easy filling. Concealed mounting for protection and great durability is noted by the maker. Operation of the dispenser is by horizontal plunger against strong spring with positive non-clogging features. The smaller size is finished in heavy chrome, 3″ in diameter by 7″ high, and fully streamlined except for the short plunger.

(To be continued)

Issues Fumigation Data

Pointing out that some authorities are of the opinion that there is a possibility of a new strain of bedbug developing which may be resistant to some residual sprays, a recent issue of *Fumigation News*, published by the insecticide department, American Cyanamid Co., New York, discusses several of the insect's habits. *Fumigation News* recommends hydrocyanic acid gas as being particularly effective against bedbugs in that the vapors enter cracks and crevices killing bedbugs and their eggs.

This issue of the house organ also contains data on "Carbacryl" and "Cyanogas." "Carbacryl," formerly called "Acrylon," is a mixture of acrylonitrile and carbon tetrachloride in equal proportions which volatilizes when exposed to air. It is non-explosive and is said to be toxic to insect life but relatively non-toxic to warm-blooded animals. While the product was originally developed for treating the inside of machinery in flour mills, bakeries, and similar plants, other uses have been indicated.

New Rodenticide

Experiments with the new anticoagulant, "Compound 42," as a multiple dose rodenticide have proved successful, according to a recent announcement by Wisconsin Alumni Research Foundation, Madison, holder of the patent on the compound. A pound of the new compound is sufficient for nearly 100 per cent kill in more than 200,000 rats, the announcement states. Observations of Prof. Karl P. Link and his associates in the department of biochemistry at Wisconsin while studying the effects of anticoagulants indicated that in certain areas of the U. S. and Canada, cattle consuming spoiled sweet clover hay became subjected to an illness which resulted in death from bleeding. Research proved that the hemorrhagic condition was caused by a toxic factor rather than a disease microorganism or a nutritional deficiency, and that this toxic factor caused the blood to clot more slowly than normal.

"Compound 42" is odorless. Because it is palatable it can be used in any kind of bait, and prebaiting is unnecessary. Since it does not act rapidly it does not produce acute poisoning symptoms—sometimes a factor in bait shyness. In addition, it does not develop a tolerance; two or three days may elapse between the initial dose and each subsequent dose. The compound is also said to be effective against mice. Additional research is now being carried on to determine the exact effectiveness of "Compound 42" as a rodenticide, and also to discover its toxicity to other animals and man.

Floor Safety Is Now Assured With SURE STEP LIQUID SELF POLISHING WAX

A NEW entirely different self polishing wax is now available for Sanitary Supply Distributors under their own label. The product is aptly trade named SURE STEP, and the slogan adopted by the manufacturer "IT STANDS UP — YOU STAND UP" describes the product both from the standpoint of safety and durability.

The danger of slipping on waxed floors has been a constant problem with maintenance engineers because they all want their floors well waxed to assure beauty and protection to the surface. Many office buildings, hospitals, department stores and industrial plants use little or no wax because of the danger of people slipping, and injuring themselves.

The Underwriters' Laboratories, Inc., have set up definite standards for wax that they consider safe for use but this amazing product even exceeds these specifications by 50% average on asphalt tile, linoleum and rubber floors.

THIS WOULD NEVER HAVE HAPPENED had the floor area been waxed with the amazing new product SURE STEP which gives all types of floors a beautiful, lustrous finish without polishing plus definite anti-slip protection.

It is a proven fact that when a corridor is waxed with a number of regular type waxes and SURE STEP that no matter how many people walk over the surface, even blindfolded, they can easily determine the section waxed with SURE STEP.

Distributors are all wanting to know more about SURE STEP, the original self polishing wax of this type which is so non-slippery, yet not tacky, sticky or gummy. Even dirt does not imbed itself in the film and by daily maintenance sweeping with a dust mop most of the traffic marks disappear. Where perfect maintenance is desired a light buffing with a floor machine is advised.

For speedy service to jobbers warehouse stocks of SURE STEP are maintained in Atlanta, Dallas, Los Angeles, San Francisco and Seattle. Full particulars may be obtained by writing the *T. F. Washburn Company*, 2240 Elston Ave., Chicago, Ill.

Advertisement

Analyzing New Insecticides

A review of methods of analysis and limitations to their use . . .

By H. L. Haller*

Bureau of Entomology and Plant Quarantine,

Agricultural Research Administration, U. S. D. A.

MANY of the problems associated with ascertaining the economic value of new insecticidal chemicals can be more expeditiously solved when their physical and chemical properties are known. Information on these properties is especially important in the development of methods of analysis. Not only are methods necessary that will permit the analysis of the technical or commercial grades of the chemical but procedures should be developed for the detection and estimation of the product in various formulations—dusts, wettable powders, emulsion concentrates and aerosols. Methods are also needed for determining the product in combination with other insecticides and fungicides and in spray residues. Because some of the new insecticides are absorbed in animal tissues and have been found in dairy products, quantitative methods must be found for determining the insecticide in them.

The importance of analytical methods for new insecticides is evidenced by the fact that during the last two years industry and government have cooperated in developing methods of analysis for two of them, tetraethyl pyrophosphate and benzene hexachloride (1, 2).

The insecticides that have received greatest commercial attention during the last several years may be divided into three broad classes—certain chlorinated hydrocarbons, phosphorus-containing compounds, and piperonyl derivatives. The chlorinated hydrocarbons that have been of most practical interest are DDT, TDE (DDD), methoxychlor (methoxy analog of DDT), benzene hexachloride, chlordane and toxaphene (chlorinated camphene). Although methoxychlor contains oxygen, it is included in this group because of its close relationship to DDT. Of the organic phosphorus-containing products, hexaethyl tetraphosphate, tetraethyl pyrophosphate, and parathion have received greatest attention. The more important piperonyl compounds are piperonyl cyclonene, piperonyl butoxide, propyl isome and sesamin.

The methods of analysis for the chlorinated hydrocarbons may be divided into five classes—determination of total organic chlorine, determination of hydrolyzable or labile chlorine, colorimetric methods, physical methods, and bioassays. The last method is beyond the scope of this paper and will not be considered.

Total Organic Chlorine Determinations

CHLORINE makes up 50 per cent or more of the weight of all the chlorinated hydrocarbons under consideration except methoxychlor, which contains 30 per cent. Therefore, methods based on the determination of total chlorine appear appropriate. Such methods are not specific, however, and any other chlorine-containing organic compound will interfere. In one procedure that has been widely used, the sample, after suitable treatment, is refluxed with sodium and isopropanol, after which the solution is diluted with water and the inorganic chloride is determined by standard methods (3, 4). The method has been adopted by the Association of Official Agricultural Chemists (5, 6) as a tentative one for technical DDT and for dusts, oil solutions, and aqueous emulsions of DDT for use in the absence of other chlorine-containing compounds. The National Association of Insecticide and Disinfectant Manufacturers has also accepted the total-chlorine method for the analysis of these preparations (7). Essentially the same procedures have been described by Donovan (8), of the Insecticide Division of the Production and Marketing Administration, for technical DDT and various commercial DDT products containing no other compounds interfering with the chlorine determination. R. H. Carter,[1] of the Bureau of Entomology and Plant Quarantine, has adapted the total-chlorine method to the analysis of mixtures of DDT and benzene hexachloride in the following manner: After de-

* Paper given at Mid-Year Meeting of National Assn. Insecticide & Disinfectant Manufacturers, Drake Hotel, Chicago, June 14.

[1] Unpublished report.

termination of total chlorine in the mixture, the DDT is estimated by the Schechter-Haller colorimetric method (9), half this value is subtracted from the total chlorine (since DDT contains 50 per cent of chlorine), and the difference is calculated as benzene hexachloride. This procedure gives no indication of the amount of the gamma isomer of benzene hexachloride.

The total-chlorine method has been used extensively in the determination of spray residues of the chlorinated hydrocarbons (10). Usually the kind of insecticide applied has been known, and by means of the proper factor the chlorine values could be calculated to the insecticide originally used. This calculation is not entirely valid, as the determinations do not differentiate between the insecticide and its degradation products or other contaminants containing organic chlorine. The values obtained by the total-chlorine method are useful, however, because they indicate the magnitude of the residue and the analysis can be made in a short time with standard laboratory equipment.

The total-chlorine method for determining residues of benzene hexachloride, chlordane and toxaphene has also been used in experiments where it was known that these insecticides had been applied (11). The method has also been applied to animal tissues, milk, and dairy products for residues of the chlorinated hydrocarbons (12). As in the spray-residue determinations, the method does not differentiate the insecticide from metabolites.

Recently, it was shown that when DDT, benzene hexachloride or toxaphene is fed or applied to cattle, such organic-chlorine residue as may be present in the fatty tissues consists essentially of unchanged insecticide. Carter and coworkers[1] demonstrated its presence by separating the fats and other oxygenated products with sulfuric acid-sodium sulfate mixture and analyzing for total chlorine. In experiments with DDT, M. S. Schechter,[1] of the Bureau of Entomology and Plant Quarantine, demonstrated its presence in fatty tissue and in butterfat by the Schechter-Haller colorimetric method (9). The residues were then tested for toxicity to house flies in comparison with the known insecticides of the same concentration. In both cases the known insecticide gave the same mortality as the residue.

[1] Unpublished report.

Hydrolyzable-Chlorine Determinations

ALL six of the chlorinated hydrocarbons yield part of their chlorine on treatment with ethanolic alkali, but methods of analysis involving this reaction have been developed only for DDT and benzene hexachloride. This type of determination is somewhat more specific and subject to less interference than the total-chlorine method, but it must be used with discretion. When it is applied to DDT, one of the chlorine atoms is removed to form hydrogen chloride; with benzene hexachloride three moles of hydrogen chloride are formed. Gunther (13) was the first to develop a method using this principle for the determination of DDT in dusts and spray residues. The original procedure has been modified by substituting 4.5N ammoniacal methanol for potassium hydroxide in ethanol and carrying out the reaction at 45°C. instead of refluxing the solution (14). This modification has been successfully employed by Gunther (15) for the determination of DDT residues on many different crops.

LaClair (16) and Soloway, *et al.* (17) have modified the dehydrohalogenation reaction to permit the determination of *p,p'*-DDT in dusts and oil solutions containing technical DDT. The reaction between the base and the halide is carried out at 20-30°C., as Cristol (18) found that under proper conditions at this temperature the *p,p'*-DDT reacts completely whereas the *o,p'*-DDT and most of the impurities react only slightly. The tentative method of the Association of Official Agricultural Chemists (19) for the determination of the purity of *p.p'*-DDT, which employs the dehydrohalogenation procedure, has been modified by Fleck (6) so that the reaction is carried out at 25°C. instead of under reflux conditions.

Unlike DDT, TDE does not lose one mole of hydrogen chloride when heated with ferric chloride, but rearranges to form an isomeric compound (20). It may be possible to develop this observation into an analytical method to differentiate the two products or to detect the one in the presence of the other.

LaClair (21) has employed the dehydrohalogenation reaction to determine the gamma isomer of benzene hexachloride in the technical product and in dust mixtures. Two identical samples are dissolved in 95 per cent ethanol and treated with 1N ethanolic potassium hydroxide at 0°C. for 15 and 50 minutes, respectively. The 15-minute period is sufficient to dehydrochlorinate most of the alpha and the delta isomers without appreciably affecting the gamma. In 50 minutes the gamma isomer is also dehydrochlorinated. The beta isomer does not react under these conditions, and usually the epsilon isomer is present in quantities too small to interfere seriously.

Colorimetric Methods

METHODS based on color reactions have been published for several of the chlorinated hydrocarbon insecticides. Although most colorimetric methods are much more specific than chlorine determinations, care must be exercised in their use, as analogs and closely related compounds may produce the same or similar colors. In general, colorimetric methods are used mostly for residue determinations and for qualitative tests of the insecticide in various formulations.

More experimental work has been done with DDT than with all the other five chlorinated hydrocarbons, probably because DDT was the first of the group found to have insecticidal value. Carter (22) has summarized the several colorimetric methods for DDT. The one proposed by Stiff and Castillo (23), as modified by Claborn (24), and the one by Schechter and Haller (9) have probably been most widely used. In the Stiff and Castillo method, when the DDT is heated in pyridine solution containing xanthydrol and potassium hydroxide, a red color develops which is proportional to the quantity of DDT present. The reaction is sensitive to 10 micrograms. As TDE does not give a color with this reagent, Claborn (24) has proposed the reaction for the determination of DDT in the presence of TDE. He has also shown that for the development of

the color the amount of water in the pyridine is critical.

The colorimetric method for DDT developed by Schechter, *et al.* (25) is based on intensive nitration of DDT with the formation of a tetranitro derivative. The product obtained with the *p.p'*-isomer gives an intense blue color upon addition of sodium methylate, whereas the *o,p'*-derivative produces a violet-red color. As the method permits the estimation of as little as 10 micrograms and since none of the degradation products of DDT interfere, it is especially useful for work on residues and biological specimens. Modifications of the method that are suitable for determining DDT in fatty materials such as milk, butter, meat and eggs have been described by Schechter, *et al.* (26) and Clifford (27). Tressler (28) has adapted it for determining DDT or its residues in canned foods. The nitration method is more specific for DDT than any other proposed. With the exception of TDE, which gives an almost identical color, none of the other chlorinated hydrocarbons interfere.

Recently a colorimetric test for methoxychlor residues was proposed by Fairing (29). The methoxychlor sample is treated with alcoholic potassium hydroxide, the reaction product extracted with ether, the ether removed, and the residue treated with concentrated sulfuric acid. An intense cherry-red color is developed. No other insecticide has been found to interfere, and the reaction is sensitive to about five micrograms of methoxychlor.

Satisfactory colorimetric methods for benzene hexachloride, chlordane, and toxaphene are not available and are urgently needed.

At the meeting of the Association of Official Agricultural Chemists held in Washington, D. C., in October 1948, B. Davidow, of the Food and Drug Administration, described a colorimetric method applicable to technical chlordane. The method is based on the observation that when technical chlordane is heated with a mixture of diethanolamine and methanolic potassium hydroxide, a purple color is produced. When known amounts of this insecticide were added to cabbage, pears and fresh and rancid rat fat, recoveries of 74 to 104 per cent of the insecticide were obtained. However, because two crystalline isomers of chlordane isolated from the technical product do not give a colored reaction product with the reagent, further investigation of the method is being made. The red color obtained when technical chlordane is heated with pyridine, alcoholic alkali, and ethylene glycol monethyl ether, as described by Ard (30), likewise fails with the crystalline isomers of this insecticide.

A method applicable to residues of benzene hexachloride was presented by Mr. Davidow at the meeting of the Federation of American Societies for Biology held in Detroit in April 1949. The method is based on the fact that benzene hexachloride yields essentially 1,2,4-trichlorobenzene on dehydrohalogenation with alkali. This product gives a characteristic absorption band in the ultraviolet which permits its quantitative determination.

Physico-Chemical Methods

METHODS utilizing characteristic physical properties have been developed for several of the chlorinated hydrocarbon insecticides. Daasch (31) has used infrared spectroscopy for the analysis of benzene hexachloride. By this means it is possible to determine the gammaisomer content, as well as that of the other isomers of technical benzene hexachloride, provided the product is substantially free of the higher chlorinated cyclohexanes.

The gamma isomer of benzene hexachloride can also be determined by polarography (32, 33). The method is based on the fact that under the conditions used, the gamma isomer is the only one of the five isomers that is reduced at the dropping mercury electrode.

Both the infrared spectroscopic method and the polarographic method require special instruments. Neither method has been found to be applicable to residues.

Physical methods based on absorption spectra in the infrared or ultraviolet have also been suggested for determining DDT. The method proposed by Herriott (34) for the *p.p'*-isomer is based on the fact that in ethanol solutions it absorbs ultraviolet light very slightly at a wave length of 250 millimicrons. After dehydrochlorination by dilute alcoholic sodium hydroxide the reaction product absorbs strongly at this wave length. The increase in absorption is measured and compared with the value obtained with a similarly treated standard solution. Downing, *et al.* (35) have shown that infrared spectroscopy can be used for the chemical characterization of technical DDT, including detection of the several isomers and impurities, and the quantitative estimation of DDT content. Neither method appears to have had widespread application.

A method for determining the gamma isomer of benzene hexachloride by partition chromatography has been developed by Aepli, *et al.* (36). Nitromethane and *n*-hexane are used as the partition solvents, and silicic acid is the supporting medium. The method appears to be useful for routine product analysis. An accuracy of about two per cent of the actual gamma isomer present is claimed.

A cryoscopic method for determining the gamma isomer of benzene hexachloride has been developed by Bowen and Pogorelskin (37). It is based on the fact that the freezing point of a compound is lowered by the presence of dissolved impurities. The method is more useful for benzene hexachloride preparations of higher gammaisomer content than the usual technical grade containing 10 to 12 per cent of the gamma isomer. The method is rapid and requires only simple, readily available equipment.

Cristol, *et al.* (38) have based a method for the determination of *p.p'*-DDT in technical DDT on the fact that the *p.p'*-isomer is almost insoluble in 70 per cent aqueous ethanol and the *o.p'*-isomer is soluble. The method has not been tried with mixtures of the other chlorinated hydrocarbons.

A mass-isotope dilution method for determining the gamma isomer of benzene hexachloride, in which gamma-hexadeuterobenzene hexachloride is used as a tracer molecule and the dilution is determined by use of infrared spectrophotometry, has been developed

(*Turn to Page* 155)

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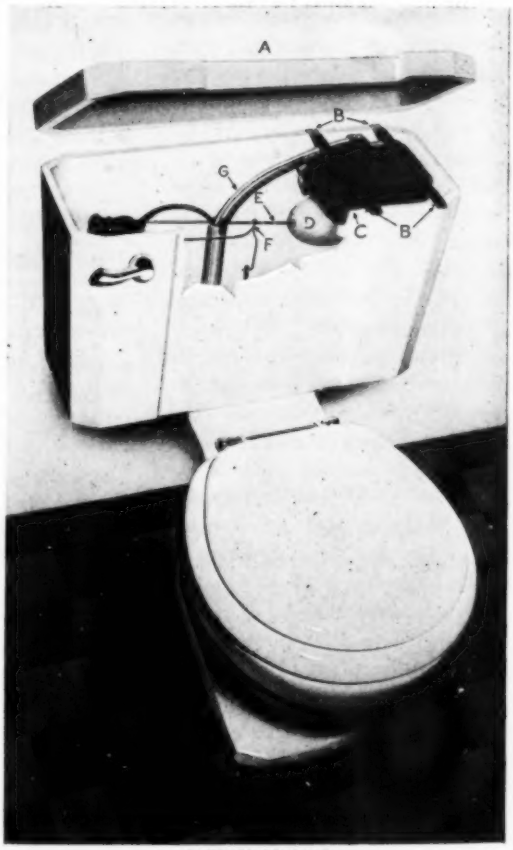

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Chlorinated Insecticides on Live Stock

By Ray L. Cuff Regional Manager National Live Stock Loss Prevention Board

DESPITE the volume of recent conflicting statements regarding the use of DDT on livestock, there will be more DDT and other good chlorinated insecticides used in the Southwest on livestock this year than ever before. Farmers and ranchers have learned by experience over the past four seasons that fly-free cattle are more profitable. They know that gains make profits. They have learned that they can now easily keep animals free from flies, lice, scab, mange and ticks with the new materials.

In 1945, thru cooperative tests on 8,000 cattle on 32 farms and ranches in 16 Kansas counties we learned that cattle kept free from flies with applications of 0.2 per cent DDT made additional gains of from 10 to 131 lbs. with average gains of 50 lbs. per head. In 1948, two-thirds of the three million head of beef cattle in Kansas were sprayed for fly and louse control. Fifty pounds per head on two million cattle equals 100 million additional pounds on the hoof.

Cooperative tests in Kansas and Missouri, in 1946, with varying concentrations of DDT from 0.25 per cent to 5.0 per cent, to beef cattle, showed 0.5 per cent concentration the most practical and economical. In 1947, tests on 2,229 beef cattle in Kansas and Missouri with DDT in both wettable powder and emulsion, methoxychlor, toxaphene and TDE in 0.5 per cent concentrations showed from 27.9 to 34 days protection. At 0.25 per cent DDT gave 21.2 days and chlordane 17.1 days protection from horn flies.

In 1948, cooperative tests on DDT, methoxychlor, toxaphene and TDE wettable powders at 0.5 per cent applied to beef cattle with power sprayer topline vs. top-plus-underline, the topline - plus - underline applications gave us 11.3 days added fly protection besides ridding cattle of lice on the top-plus-underline sprayings. We demonstrated that by one proper application of 0.5 insecticide to cattle together with one application of 1.0 per cent and one application of 2.0 per cent insecticide to shed, fences, trees and underside of feed-bunks we could keep 58 steers comparatively free from flies for 134 days during the summer feeding season and that cattle can again be summer-fed.

In our 1948 tests, a single application of 1 per cent methoxychlor emulsion to a milking barn 100 x 40 x 8 continued to kill flies from May 28 through October 11, when the first killing frost came. In another test in which the barn and 75 dairy cows were thoroughly sprayed with 1.0 per cent methoxychlor wettable powder May 6, all flies were controlled 62 days. On July 16 when there were no horn flies but 25 stable flies per head, cattle were resprayed with 2.0 per cent methoxychlor wettable powder and were kept free from all flies 10 days. At no time until killing frost were there over five stable flies per animal and no horn flies. We learned that stable flies on dairy cattle can be controlled with methoxychlor.

Regarding the reaction of cattlemen and dairymen in the Southwest to the recent announcements on the restricted use of DDT, most beef cattle growers are continuing to use DDT for fly control this season. Some are adding BHC to get faster fly kill. We have had little or no trouble with DDT-resistant flies in this area. Whenever we have a tough fly problem, we mix BHC or BHC with DDT or methoxychlor. We have found no flies that can take this mixture. Some well-informed dairymen are switching to methoxychlor or pyrethrum-piperonyl butoxide. At least one county cattlemen's association in Kansas is using nothing but methoxychlor in its county spray-rig for both dairy and beef cattle. Availability of materials is a problem. DDT is for sale at every cross-roads. Methoxychlor is harder to get. Of course, use of all insecticides depends on effectiveness, cost and availability. The cattleman who has had success with one material will continue to use it until he finds something better.

Regarding the problem of continued use of DDT on breeding cattle, throughout the summer of 1946 we sprayed one pasture of pure-bred beef cattle with 5.0 per cent DDT suspension. The cattle came through the summer fine on pasture, with excellent gains to cows and calves, a fine haircoat and perfect breeding record. We are still spraying some of these same cattle and can detect no ill effects from the use of DDT.

We are often asked what effect BHC has on the odor and taste of meat. In recent tests with the U. S. Bureau of Animal Industry we cleared up scab in cattle and sheep and mange in hogs with one thorough treatment with BHC. In taste tests we have been unable to detect any foreign odor or taste in meat from animals treated with BHC just prior to slaughter. Because BHC kills more lice and stops the development of louse eggs, our growers use it in summer and winter,—in summer with DDT or methoxychlor for fly and louse control and in winter for louse and tick control.

One of the problems in getting good results with the newer chlorinated insecticides is proper application. To help meet this problem we have re-

(*Turn to Page* 153)

* Before the Mid-Year Meeting of the National Association of Insecticide and Disinfectant Manufacturers, Drake Hotel, Chicago, June 13 and 14, 1949.

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CHEMICALS INDISPENSABLE
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N.A.I.D.M. MEETS, ADOPTS NEW NAME

Chemical Specialties Manufacturers Association plans expansion in activities . . . five sections set up for insecticides, disinfectants and sanitizers, soaps, detergents, deodorants and sanitary chemicals, waxes and floor finishes, and aerosols.

MEMBERS of the National Association of Insecticide & Disinfectant Manufacturers voted unanimously to adopt the name Chemical Specialties Manufacturers Association, Inc., at the 35th annual mid-year meeting, held at the Drake Hotel, Chicago, June 13 and 14. The change of name was accomplished by the adoption, without opposition, of a new constitution and by-laws, designed to broaden the scope of the association's activities by setting up five divisions within the renamed organization. As provided in the new constitution, the Chemical Specialties Manufacturers Association will be composed of five divisions: insecticide; disinfectant and sanitizers; wax and floor finishes; soaps, detergents, deodorants and sanitary chemical products; aerosols. Each division will be directed by an administrative committee composed of a chairman, vice-chairman and three additional members, each of whom is to be elected annually from the membership of the division. The chairman of the division will be a member of the board of governors.

In his president's report at the opening session Gordon M. Baird of Baird & McGuire, Inc., Holbrook, Mass., discussed the reorganization of the association. Following his address, a motion that the new constitution and by-laws of the association be adopted was voted unanimously.

In his report as secretary, H. W. Hamilton, H. W. Hamilton Co., New York, reviewed the legislative activities of the association in connection with state legislation affecting insecticides. He recommended that the association adopt a policy of demanding that all states accept registration and labeling requirements of the Federal government and that the association and its members act individually and collectively to prevent the passage of any future state legislation that does not incorporate provisions of the Federal registration and labeling requirements. Mr. Hamilton went on to say that just and equitable laws to protect the public from inferior and worthless products are desired, but that this protection is obtained by "policing, not by registration." He also called for efforts to have the products of the industry referred to as "pesticides," not "economic poisons." Action to have jurisdiction over any legislation, investigations or control of insecticides reside with the Department of Agriculture also was suggested. Mr. Hamilton concluded with a review of the Association's activities, announc-

Above: Part of the group at the June 13th session of the disinfectant and sanitizers division.

Above: Board members and guest speaker, William Crean, at the head table at group luncheon, June 14.

ing the availability of the new tentative official test aerosol.

A departure at this year's mid-year meeting were simultaneous discussion sessions of industry groups within the organization. These were held the afternoon and morning of June 13 and 14, respectively. On June 13 the following divisions met: aerosol; disinfectant; soap, detergent, deodorant and sanitary products division; and wax and floor finish. The aerosol division meeting, which carried over to the following morning, was highlighted by a symposium on the effects of recent publicity on DDT aerosols. In general, the consensus seemed to be that most manufacturers would continue to use DDT in aerosol insecticide formulations. Spokesmen for the government indicated that DDT would continue to be required in specifications for insecticides for treating planes coming into the United States and on those going from the U. S. to Latin America.

The outlook for aerosol supplies is favorable, with two exceptions, Melvin Goldberg of Pesticide Advisory Service, New York, reported. Methoxychlor and pyrethrum will be in fairly tight supply for the rest of this year and pyrethrum may be in short supply during 1950, Mr. Goldberg stated. Containers, filling capacity, solvents and propellents are in good supply, he said. The possibility of a new aluminum type container was also mentioned.

The demand for a specific moth product on the part of the consumer was discussed by H. R. Shepherd of Connecticut Chemical Research Corp., Bridgeport, who reported on a survey made by his company to determine consumer reaction to existing moth products and methods of application.

"The insecticidal aerosol has made considerable headway, but additional progress will be dependent upon customer satisfaction, and this satisfaction will be dependent upon the performance of the bomb and the claims made for it," A. C. Miller of Gulf Oil Corp., Pittsburgh, pointed out in his paper "Insecticidal Aerosols."

The development of the tentative aerosol test method of the NAIDM was discussed by E. J. Campau of Standard Oil Co. of Indiana, Whiting, who outlined the background, need and fulfillment of such a method.

The question of caution statements on aerosols was discussed by H. R. Shepherd who read a list of suggested precautionary statements, the best two of which were regarded as "never store on stoves, on steam pipes or near radiators" and "never puncture container." The statements are concerned only with the ingredients of the container.

THE disinfectant and sanitizer division addressed itself mainly to discussion of the Black and Weber method of testing quaternary ammonium compounds. The discussion, in the form of a symposium, was participated in by A. S. DuBois, moderator, of Fuld Brothers, Inc., of Baltimore; P. G. Bartlett of West Disinfecting Co., Long Island City, N. Y.; Sol Epstein of Emulsol Corp., Chicago, and George Goetchius of Rohm & Haas Co., Philadelphia. In his contribution, Mr. Goetchius stated that studies on disinfectant action should probably not be devoted toward the development of a single test procedure but toward establishing a number of tests corresponding as closely as possible to actual use conditions.

In his paper dealing with the effects of water hardness on quaternary ammonium compounds, E. H. Armbruster of the School of Public Health of the University of Michigan, pointed out that there are two ways of overcoming this unfavorable condition. One method is the use of high concentrations of quaternaries, the other by the addition of alkaline substances such as carbonates, phosphates, etc., which have the effect of softening the water.

P. C. REILLY, JR., of Reilly Tar & Chemical Corp., and treasurer of NAIDM, in calling to order the first meeting of the Soap, Detergent and Sanitary Products Division, said the occasion marked a new era for the organization and he expressed the hope that this would develop into one of the most active sections of the newly reorganized association.

R. W. Peet, manager of the Association of American Soap & Glycerine Producers, who was introduced by the meeting's chairman, Charles Solly of Harley Soap Co., Philadelphia, devoted his talk to an exposition of the activities of the AASGP. Of particular interest, he indicated, are his organization's labor relations and legislative work, statistical service and cleanliness promotion project.

He told of recent efforts in Washington to show authorities how a proposed $1.15 minimum wage in the soap industry would result in putting small manufacturers out of business and also told how a drive in the Pennsylvania legislature to require that bar soap be dated and sold by the pound has been temporarily held up. Further, through the Association's efforts the National Conference on

Weights and Measures, has, he said, been contacted and a presentation made pointing out that net weight is not the true measure of the effectiveness of soap.

On the cleanliness program, whose purpose is to develop a more cleanliness conscious country, Mr. Peet declared that soap makers have a great deal in common. The program, he said, will affect all segments of the industry. The more all soapers work on it, he declared, the better off will the entire industry be.

In a paper on "Fatty Acids and Liquid Soaps," R. A. Behrman, Emery Industries, Inc., Cincinnati, O., explained how properties of liquid soaps prepared from fatty acids, are largely determined by the choice of fatty acid and alkali used for saponification.

He discussed various commercially available fatty acids and alkalis in terms of their influence on soap solubility, viscosity, sudsing characteristics and other important properties. Also reviewed were results of preliminary studies on the effect of unsaponifiable content and blends of fatty acids on liquid soap solubility and viscosity. These developments, he pointed out, will lead to production of "tailor-made" soaps to meet specific requirements.

The "bright future of tall oil" was the theme of a paper presented, in part by Dr. C. B. F. Young, executive vice president of National Southern Products Corp., and in part by George H. Eick, technical sales engineer of this company, both of whom, along with Wm. Warmack, technical representative, were joint authors of the paper.

Closing the division's first session L. J. Chase, manager, edible oils dept., Spencer Kellogg & Sons, Buffalo, N. Y., presented an analysis of the coconut oil outlook.

There is no chance, he said, for passage of the bill now before Congress to remove the 3 cent excise tax on coconut and, although the National Renderers Association is seeking to have this tax increased, word from Washington is that the status quo will be maintained, he stated.

REVOLUTIONARY new knowledge of waxes, and production techniques which make possible increased gloss, hardness and skid resistance were described at the session Monday afternoon of the organization's wax and floor finish division.

Michael Sveda of E. I. du Pont de Nemours & Company's Grasselli Chemicals dept., displayed electron micrographs of wax surfaces taken only two weeks earlier which, he asserted, point the way to relate, for example, particle size and gloss. This work, he said, should result in the development of new methods for the manufacture of better waxes. His study involved use of his company's colloidal silica, "Ludox."

Skid resistance, he said, appears to increase with the decrease in particle size, the reason suggested (tentatively) being because the smaller particles surrounded by the colloidal silica may present more surface to the foot. The small particle size of the Ludox also gives clarity in concentrated solution and the wax has "at least several years stability at room temperature."

Maximum increase in skid resistance is obtained with Ludox when additives, such as shellac, manila gum and resins are also employed. Freeze resistance can be obtained with Ludox-modified waxes by adding ethyl amine to the diluted colloidal silica before blending with the wax dispersion.

In a paper on "Examination of Wax Suspension by Turbidimetric Methods," written by M. E. Bolton and A. W. Marshall of the Petrolite Corp., Kilgore, Tex., it was explained how a simple visual turbidimeter in combination with a dilution technique may be adapted to measurement of particle size in a study of dry bright polishes.

Mr. Marshall, who read the paper, stated that the method may be used as a basis of correlation of such emulsion characteristics as optimum gloss and stability or as an instrument of control on actual production of water suspension polishes.

Optimum particle size for best gloss, he reported, seems to be in the range of 0.06 to 0.075 microns average particle diameter. Addition of excess emulsifying agents above this point decreases gloss and use of very excessive amounts can harm stability of the finished emulsion. Addition of hard, glossy inert materials will improve gloss of oxidized wax polishes, provided the ability of the oxidized wax to form optimum particle size is not impaired, he said.

Oxidized petroleum waxes are not a "substitute" for carnauba waxes. M. Bloch of Warwick Wax Co., Long Island City, N. Y., declared in a report on "Microcrystalline Waxes." These waxes, produced from tank bottom sediment, he said, equal in characteristics and performance any vegetable wax imported from Brazil.

A. G. Bowers, chief chemist, Hunt Mfg. Co., Cleveland, O., whose paper was entitled "Carnauba Wax—Adulterated?" pointed out that, since the composition of carnauba waxes is not accurately known, it is difficult to determine if the wax is adulterated. He listed four kinds of carnauba wax offered for sale today and showed that there has been a steady decline in flash point of one of these types, No. 3 North Country carnauba, since 1941, when it never fell below 590° F. unless

obviously adulterated. His study, he explained, was intended to show the need for a careful study of the methods of analysis of carnauba wax.

THE major attention of the second divisional meeting of the aerosol group, held the morning of June 14 was directed toward the use of triethylene glycol in aerosol bombs. The discussion, in the form of a symposium, E. G. Young of Kinetic Chemicals, Inc., as moderator, dealt mainly with the experience of packers, formulators and manufacturers of germicidal aerosols. The consensus was that these applicators have a useful place, provided ample testing has been done to support claims made for the products.

A review of the "History and Functions of the Compressed Gas Association and the Bureau of Explosives" was presented by E. G. Young, who described briefly the history and reasons for the establishment of the Bureau of Explosives.

The role of aerosol deodorants was discussed by J. Mills, Bridgeport Brass Co., Bridgeport, Conn., who covered the history and physiology of odor and its detection and the six main types of air deodorization.

One of the newest applications of the low pressure aerosol, that of wax spraying was discussed by E. J. McKernan of Continental Filling Corp., Danville, Ill., who pointed out that this field may be one of the most important ones for aerosols. Spray waxing is already widely used in aviation, trucking and in other industrial applications and is now coming into its own for household use, particularly on cars.

A SANITARY session, a joint meeting of the Soap, Detergent and Sanitary Products Division and the Disinfectant Division, was also held the morning of June 14. A review of the chemical nature and function of detergent sanitizers in restaurants, hotels, hospitals and homes was presented by Lee D. Callans of Antara Products Division, General Aniline and Film Corp., New York.

"Bakery Sanitation" the subject of the next paper, was covered by E. L. Holmes of the American Institute of Baking, Chicago, who told the group that bakery sanitation goes far beyond the problems of insect and rodent control.

The use of triethylene glycol vapor in air disinfection was outlined by L. D. Polderman of Carbide and Carbon Chemicals Corp., New York, who reviewed some of the literature on the subject and enumerated some of the benefits which tests seem to indicate have followed from the use of the glycols.

"Chelation and Its Application in Industry" was outlined in detail in a paper presented by John J. Singer of Bersworth Chemical Co., Framingham, Mass. Chemical structure, properties, uses and application of these new type sequestering agents were covered by Mr. Singer.

This account of the final mid-year meeting of the N.A.I.D.M. (now the Chemical Specialties Manufacturers Association) was necessarily prepared rather hastily, so that SOAP'S readers might have an account of the meeting in this issue. Under the circumstances the usual careful checking of reported remarks with speakers has been impossible. We trust that any resulting errors will be pardoned. Several of the complete meeting papers appear elsewhere in this issue and more will follow next month.

THE Insecticide Division at its meeting June 14 covered a number of the recent developments in insecticides. Among them were discussions of the "Synthesis of Pyrethrin-Like Esters" by R. C. Roark of the Bureau of Entomology & Plant Quarantine, U. S. Department of Agriculture, Beltsville; "Why Precautionary Labeling?" by Justus C. Ward, a paper which is published elsewhere in this issue; "Household Insecticides—Their Use and Cautions" by S. A. Rohwer; "Current Status of Problems Associated with House Fly Control on the Farm" by E. F. Knipling of the Division of Insects Affecting Man and Animals, Bureau of Entomology & Plant Quarantine, U.S.D.A.; "Analytical Methods for New Insecticides and Limitations to the Use of These Methods," by H. L. Haller, of the Bureau of Entomology & Plant Quarantine of the U.S.D.A., published in this issue; and "Problems in the Use of Some of the Chlorinated Insecticides on Livestock" by Ray L. Cuff of the National Live Stock Loss Prevention Board, Kansas City, Mo., also in this issue.

Mr. Rohwer in his talk recommended that rather than seek one insecticide to kill all types of insects, manufacturers should try to develop specific insecticides for certain types of insects.

Dr. Roark in his paper compared the effectiveness of natural with the synthetic type pyrethrins, illustrating his discussion with slides showing the formulas of each.

The general session on the afternoon of June 14 heard a discussion of the measurement of odors and a report on a new instrument for measuring odor by Louis C. Barail of U. S. Testing Co., Hoboken, N. J., whose paper appears elsewhere in this issue.

Four general fundamental methods of deodorizing air were discussed in a paper "Chemical Fundamentals of Air Deodorization" by L. B. Kilgore of Kilgore Chemicals, Inc., Washington, D. C.

Another deodorant paper, "Theoretical, Experimental and Practical Considerations in the Design of an Aerosol Deodorant" by Lloyd H. Beck and H. R. Shepherd of Bostwick Laboratories, New Haven, Conn. was presented by Mr. Beck. In it he described the Bostwick Odorometer, a new device for measuring the effectiveness of air deodorization.

A general discussion of the development of aerosols for greenhouse use was described in a paper, "Aerosols for Greenhouse Pest Control" by R. A. Fulton and Floyd F. Smith of the Bureau of Entomology & Plant Quarantine U.S.D.A.

The annual reception and dinner were held on June 14, the latter being a testimonial dinner to John Powell of *Modern Sanitation* magazine, who was elected an honorary member after serving the association as treasurer for 18 years, until his resignation as treasurer earlier this year. Mr. Powell was presented with a set of golf clubs and a golf bag.

Operator above is shown using the "twin" Osmometer for measuring an odor combined with clean air. The model is the laboratory size.

ODOR MEASUREMENT

By Dr. Louis C. Barail*

U. S. Testing Co.

FOR several centuries odors have been considered an important factor in the manufacturing, identification, and use of drugs and chemical compounds. A great many odors are perceived by the human nose, but a much greater number are not detected by it. Many animals and insects are capable of detecting odors that fail to be perceived by humans. To cite only a few examples, dogs recognize and remember for great lengths of time the body odors of their master and friends, whether human or canine. Pigs can detect truffles and other edible fungi buried several inches in the ground. Other animals and insects are very sensitive to odors of sweat, perfumes and chemicals, and properties are used in the manufacture of repellents. Studies made of animals and insects seem to indicate that their olfactory sense is not susceptible to important variables such as their health condition, whether they are tired or rested, changes in weather conditions, temperature or humidity, nor to intensive and interfering odors. On the other hand, the human nose is very susceptible to such changes. The human nose does not evaluate or classify the same odor in the same way when the individual is in good or poor health, when he is tired or rested, before or after being in dry or humid atmosphere, in hot or cold temperatures, or when the odor is pure or associated or interfered with by other odors.

Odor Measurements

FROM these statements it could be inferred that accurate measurements of odors with the human nose are practically impossible. A great deal has been written about measurements and identifications of tastes. It has been found that substances do not have the same taste when tested by different subjects. Some chemicals are known to have a bitter taste when tested by some, a sweet taste when tested by others, and no taste at all when tested by a third category of persons. Fortunately, the same does not apply in the measure-

* A paper presented at the mid-year meeting of the National Association of Insecticide and Disinfectant Manufacturers, Drake Hotel, Chicago, June 13-14, 1949.

For European Corn Borer

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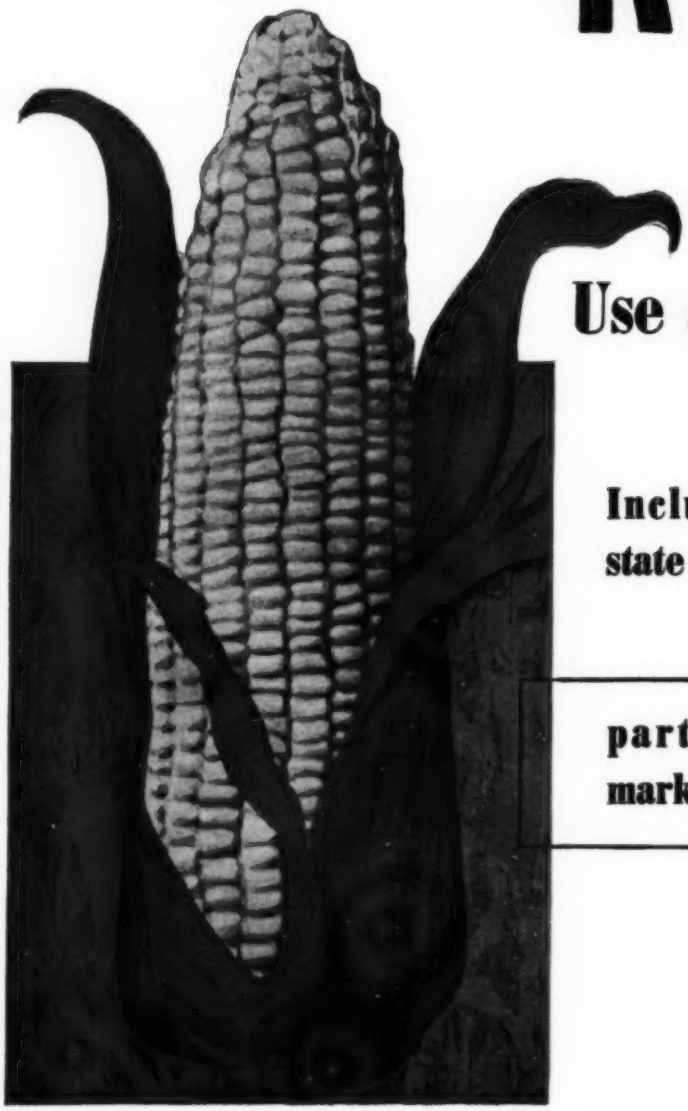

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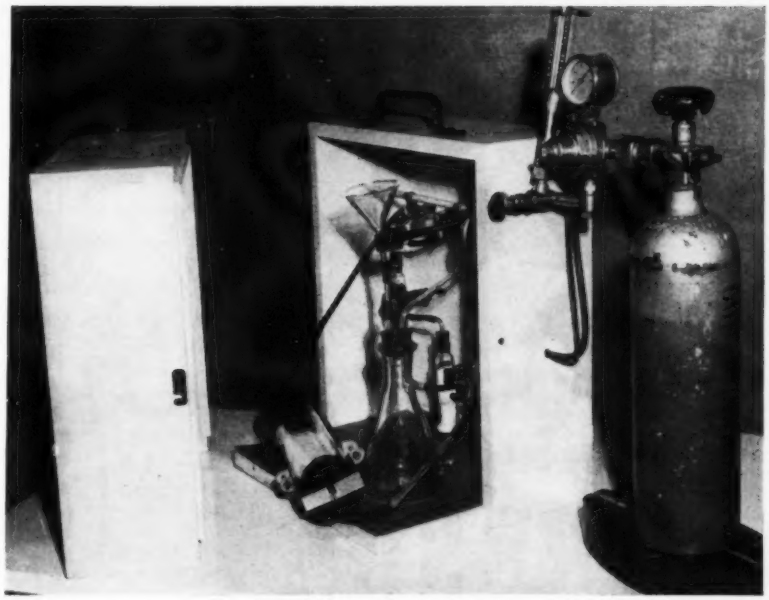
ment and testing of odors. The basis for the construction of the Osmometer is our opinion, confirmed as being sound, that when people are in good health, have sufficient training, and as many variables as possible are eliminated, it is possible for them to obtain actual reproducible readings in the measurement of odors by means of numerical figures. Therefore, under these conditions, anybody is able to make the same readings and consequently obtain the same numerical results on the same sample.

As we said before, we believe that it is essential for an odor tester to be in good health. By that we mean: to be free from any chronic or acute disease, and of average activity without any excess in exertion or depression. Next in importance to health, and consequently to the resistance to outside agents and increase of sensitivity, is the control of the humidity of the air or of the odor itself, whether or not it is mixed with odorless air. Consequently, it is highly advisable that the air or the odor have as low a moisture content as possible.

Other factors of great importance had also to be taken care of in the elimination of variables, and will be described with the Osmometer.



The Portable Osmometer

The Osmometer

THE Osmometer is the first apparatus wherein the elimination of variables has been so perfected that the testing of an odor can be made by several individuals in good health and still bring results with variations of less than five per cent. Some of the apparatus which was previously devised was too simple to be accurate for the determination of rather faint odors, as, for instance, the putrefaction odors in water. A single instrument, built for this very purpose, the Fair and Welles osmoscope, is quite satisfactory. On the other hand, it is of absolutely no value for the measurement of other types of odors. Other apparatus that was more elaborate was too complicated to be useful. These instruments contained too many gadgets, devices, and lengthy tubing, which considerably reduced the intensity of the odor. Furthermore, they did not eliminate the most important variables, so that no two individuals were able to obtain the same results when testing the same odors. The differences varied considerably, and the apparatus was quickly abandoned and forgotten.

In order to obtain accurate results in the measurement of odors, it was necessary to build an apparatus of great reliability. As no way has yet been found to measure odors without using human olfactory nerves, such an apparatus should enable anyone to obtain reproducible results provided the following conditions be met:

(1) The amount of air to be smelled should be known.
(2) The air to be smelled should reach the nose of the technician under its own pressure. This pressure should be known.
(3) The air to be smelled should contain only the odor to be measured, and should have no odor of its own.
(4) The air should be clean prior to its being contaminated with the odor to be tested. The moisture of the air to be tested should be known.
(5) All tests should be made under the same conditions.

Description of the Osmometer

AS no such apparatus was available, we built our own to meet the conditions above. The precision of our Osmometer is such that, for the same specimen, trained technicians obtain readings that never vary more than four or five per cent. This shows that by elimination of all variables the organoleptic errors are reduced to a minimum. The Osmometer is based on the air dilution principle, using quantities of odor-free and odorous air, which are diluted and mixed in various concentrations. The dilution is performed under moderate pressure, which can be made to vary from one to 300 mm. Hg. However, pressures higher than 150 mm. are seldom used.

This pressure was found to be necessary for two reasons: First, a pressure difference was needed to move air from one container to another. Secondly, a stream of air which suddenly strikes the olfactory nerves will cause an immediate perception of odor if any may be present. The instrument is connected to a source of compressed air A. It consists of a flow-meter B, an air-washer C, a desiccator D, a deodorizer E, a mixing-jar F, a sample-containing tube G, a pressure gauge H, and an outlet funnel I. The odorous material is placed in the sample tube, and a measured volume of washed, moisture-free and odor-free air is forced through the specimen and into the mixing jar. This, of course, increases the pressure in the mixing jar and also dilutes the odorous vapors in a known proportion, depending on the volume of air forced through the specimen and upon the volume of air in the mixing jar.

Additional fresh air is then introduced into the mixing jar via a separate connection which by-passes the specimen tube in order to obtain a moderate pressure sufficient to cause a stream of air to pass through a narrow orifice upon the opening of a release valve. This final total pressure must be kept constant for all measurements.

If no odor is detected when the air is suddenly released from the mixing flask, the experiment is repeated, this time with twice the volume of air forced through the specimen. The experiment is repeated until sufficient air has been pumped through the odorous object to produce the sensation of odor. The concentration at which the odor becomes just barely perceptible is called the "threshold value."

This threshold value can be expressed numerically and this numerical expression is called the "odor threshold number." The ratio between the total final pressure and the pressure increment caused by the odorous air results in the odor threshold number:

$$\text{Odor Threshold Number} = \frac{\text{Total Pressure}}{\text{Odorous Increment}}$$

The odor threshold number gives the concentration of the odor in the air dilution which will just barely cause the sensation of odor. For strongly odorous substances, this concentration as reported in the odor threshold number will be low, and the odor threshold number will be high. For weak odors it will be the opposite.

The following classification of odor threshold numbers is used for the evaluation of the results of the tests. A threshold number in the range from 1.0 to 5.9 means

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Odor	Average odor threshold number	After 10 minutes exposure to deodorizer: Odor threshold number	After 10 minutes exposure to deodorizer: Per Cent of odor removed	After 30 minutes exposure to deodorizer: Odor threshold number	After 30 minutes exposure to deodorizer: Per Cent of odor removed
Sample No. 2	18.2				
Tobacco smoke	22.1	30.3	45	26.0	65
Toilet	12.1	22.1	68	18.2	100
Kitchen	15.1	22.1	74	18.2	100
Garbage	16.0	26.0	51	26.0	77
Sample No. 3	22.1				
Tobacco smoke	22.1	30.3	63	22.1	100
Toilet	12.1	26.0	68	22.1	100
Kitchen	15.1	26.0	74	22.1	100
Garbage	16.0	30.3	48	26.0	75

Table 1. Air Deodorants

a very slight odor: from 6.0 to 8.3: slight odor: from 8.4 to 13.0: definite or objectionable odor; from 13.1 to 26.0: strong odor; from 26.1 to 91.0: extremely strong odor.

There are two models of the above described Osmometer, also called the regular or single Osmometer: first, a laboratory model which can be connected to any air compressor. It is of standard size and very convenient to use with any supply of compressed air and when sufficient bench space is available. There is also a portable model especially built for field tests. It is of a slightly smaller size and receives its compressed air supply from a bottle of compressed air. As the compressed air bottle is equipped with a flow meter, it does not feature any flow meter of its own.

The Twin Osmometer

THE single Osmometer can be used for the measurement of odors on samples of any chemical, in solid or liquid form, or of materials of any kind that are impregnated with odor bearing compounds. However, where rather faint odors are concerned, as for instance, in the measurement of the efficiency of air deodorizers or disinfectants, the single Osmometer can give satisfactory results only if it is so modified that the foul air and the fumes of the air-deodorant can be handled and controlled separately. For this purpose, instead of using one sample-containing tube, we use two which are placed in series on the compressed air line so that the variable amounts of the air contained in each of them can be brought into the mixing jar F. It is possible, therefore, with this arrangement to obtain the odor threshold number of the foul air to be tested; for instance, stale tobacco, or kitchen odors and that of the air deodorant, and also to determine the amount of air deodorant that is necessary to completely deodorize or mask the odor contained in the other sampling jar. Another advantage of this modification is that the air can be directly sampled by creating a vacuum in these sample-jars, and collecting a sample of air just by opening one of the stop-cocks.

Air Deodorants

AMONG the disinfectants that can be tested with the Osmometer are various types of deodorants. Some deodorants have the purpose of reducing the odors present in the air either by pure deodorizing action or by a masking action, or by a combined deodorizing and masking action.

A straight deodorant is a substance that eliminates an odor without adding any masking odor of its own. Deodorants can be classified in two categories according to the way they work. The simplest deodorant is the one that acts by absorbing the odor without destroying it; for instance, activated charcoal and a few prepared earths. They have disadvantages: first, they have to be used in relatively large amounts compared to the amount of odor to be absorbed; second, since they absorb the odors, their usefulness ceases when they become saturated and emit the odors they have absorbed. On the other hand, some of them can be renovated under certain conditions, and thus are quite satisfactory in small areas, such as ice-boxes, small kitchens and bathrooms. The other types of deodorants act by chemically reducing or suppressing the odors. They are very inexpensive and give satisfactory results.

Some of these deodorants are sprayed on or used for washing floors and walls, while others merely are kept in a bottle and allowed to evaporate by means of a wick. Among the objectionable odors these compounds are supposed to remove are tobacco smoke, kitchen odors, garbage odors, odors of fresh fruits and vegetables, of animal rooms, and what is called hospital or medicinal odor.

Some are used in manufacturing plants or warehouses where there are such predominant odors as fish, fresh or smoked, cheese, onion, garlic, spices, other odors emanating from foods, musty odors due to mildew, and various chemical odors.

Air deodorants are generally tested against these various types of odors after lengths of time of 10 minutes and 30 minutes, and sometimes more. A good air deodorant should give satisfactory results after 10 minutes, and a compound that will not give satisfactory results after 30 minutes should be rated as poor. The threshold number of each of the original odors before using the compounds is compared with the threshold number obtained after exposures of 10 and 30 minutes. When the air deodorant has an odor of its own, whether due to the active chemical or to an added masking agent, the threshold number of the compound is established and this number is added to the threshold number of the odor, before calculating

Table 2. Air Deodorants

	Odor	Average odor threshold number	After 10 minutes exposure to HB: Odor threshold number	After 10 minutes exposure to HB: Per Cent of odor removed	After 30 minutes exposure to HB: Odor threshold number	After 30 minutes exposure to HB: Per Cent of odor removed
(1)	Fresh fruit and vegetable	9.1	8.6	100	8.6	100
(2)	Tobacco smoke	22.1	13.0	80.0	10.1	93.2
(3)	Garbage	11.3	9.1	95.5	9.1	95.5
(4)	Restaurant	18.2	9.1	97.2	9.1	97.2
(5)	Animal 200 M	10.1	9.5	91.0	9.5	91.0
	HB	8.6				

LEGEND

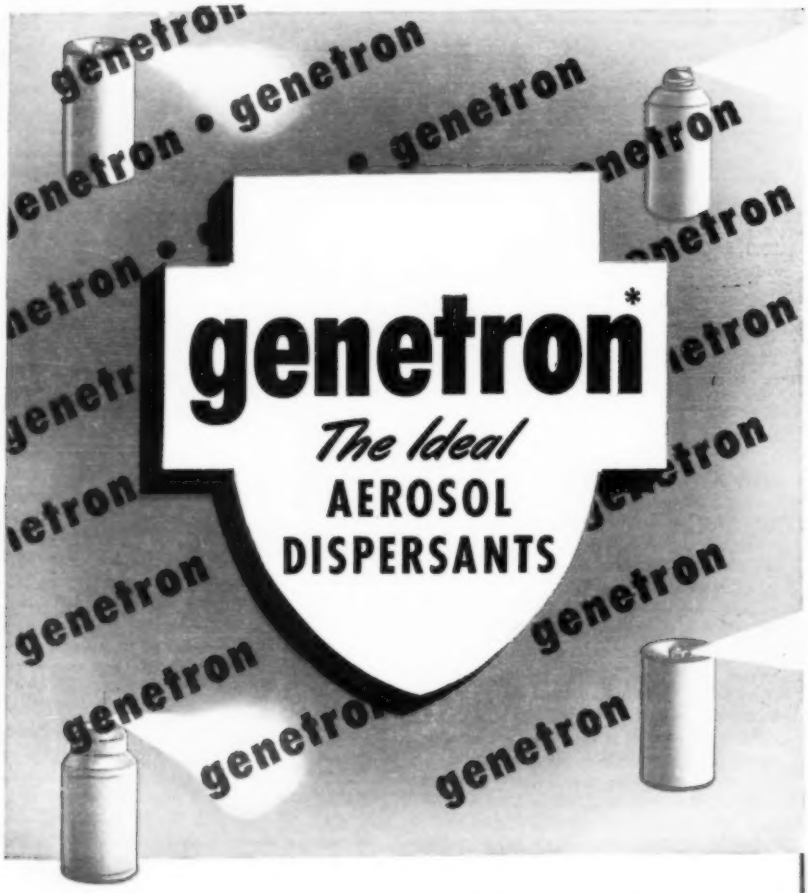
Odor threshold number	Quality of odor
6.0 — 9.1	Slight
9.1 — 12.1	Moderate
12.1 — 26.0	Strong (objectionable)
26.0 — 91.0	Extremely strong

Table 3. Air Deodorants

Odor	Original	Odor threshold number after exposure to KT
Fish	13.1	0
Roquefort cheese	15.0	0
Cold cuts	12.1	0
Cauliflower	8.8	0
Onion	21.4	6.5
Garlic	25.0	8.2
Decomposed fish	16.6	0
Fried steak	12.4	0
Cigarette smoke	43.4	0
Medicinal odors	25.7	0

LEGEND

Odor Threshold number	Quality of odor
6.0 — 9.1	Slight
9.1 — 12.1	Moderate
12.1 — 26.0	Strong (objectionable)
26.0 — 91.0	Extremely strong



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the difference after 10 and 30 minutes. This indicates the per cent of odor removed.

All determinations of the efficiency of air deodorizers are made with the twin Osmometer which features two sampling jars connected to the mixing jar. (Tables 1, 2, 3 and 4).

Disinfectants

IT is well known that the odor of a great many disinfectants is objectionable to the majority of users. Such an odor is often referred to as hospital odor, chemical odor, or more specifically, as a phenol, or a tar, or a pine oil odor. Such descriptions by the public indicate that the odors of these disinfectants are well perceived and analysed. It is also well known that manufacturers of disinfectants have tried to eliminate, or at least reduce, the objectionable odors whenever possible. They have been helped by odor measurements which compare the new preparations with the original ones having an undesirable odor. These odor measurement tests are made in conjunction with efficiency tests, such as determination of the phenol coefficient, bacteriostatic, fungistatic, germicidal and fungicidal tests. The tests on disinfectants are conducted, not only by measuring the odor threshold number of the finished compounds, but also by determining the odor threshold number of each constituent of the formula, and by evaluating other individual deodorizing or masking properties. This sometimes involves considerable research work, both in the manufacturer's laboratory and in an outside testing laboratory, until satisfactory results are obtained and a new formula adopted.

Another important phase of odor measurements on disinfectants are the periodic tests made to compare the odor of the original product immediately after it leaves the plant with that of the same product after several months or years of shelf life in stores, not only in the U. S., but in foreign countries and under various climates. Needless to say, these odor measurement tests very often accompany efficiency tests to determine if the original compound retains its disinfectant properties. Odor measurements may be made after various periods of shelf life to find out whether the product has lost its original odor, or whether it has been decreased, increased, or modified. Such modification in intensity of odors can be due to chemical reactions inside the product, or to extrinsic reactions, such as oxidation. They can be due also to photo-sensitivity of the product, caused by prolonged exposure to sunlight or artificial light. We have found cases where the efficiency, phenol coefficient, and general appearance of compounds had not been changed at all, but the odor had been modified by reaction to light, and had become definitely objectionable. Odor measurement tests conducted in conjunction with the reproduction in the laboratory of the action of light on a given sample, definitely established that the photo-chemical action was responsible for the change in odor, and that the odor threshold number of the submitted sample was comparable to that of the sample which had been submitted to such exposure to light.

The determination of the intensity of odor applies, of course, to all types of disinfectants, whether liquid, semi-liquid, or solid. Among these are the fumigants, the various antiseptic solutions in water, oil, and solvents; the emulsions, pastes, and liquid waxes, and the solid waxes having disinfectant properties.

Sample	Odor	Odor threshold number: Original odor	Odor threshold number: After exposed to U-12
5% U-12	Icebox	8.1	0
5% U-12	Kitchen	12.0	0
5% U-12	Garbage	35.0	10.6
5% U-12	Tobacco smoke	22.2	8.1
5% U-12	Toilet bowl	11.1	0
5% U-12	Musty odor	11.3	0
0.1% U-12	Perspiration	8.1	6.0
0.25% U-12	Perspiration	8.1	0
0.1% U-12	Urine on fabric	12.8	6.5
0.25% U-12	Urine on fabric	12.8	0

LEGEND

Odor threshold number	Quality of odor
6.0 — 9.1	*Slight*
9.1 — 12.1	*Moderate*
12.1 — 26.0	*Strong (objectionable)*
26.0 — 91.0	*Extremely strong*

Table 4 (above) Chemical Deodorants

Table 5 (below)

PINE OIL DISINFECTANTS	Odor threshold number: as received	Odor threshold number: after 6 months
Samples		
No. 264	26.7	20.7
K27	34.8	34.1
2-L-21	22.3	21.7
M.Z-4	31.5	25.1

Table 6

LIQUID SOAPS	Odor threshold numbers: As received	Odor threshold numbers: After 6 months
Samples		
Glycerine No. 275	16.7	16.1
Synthetic D27	21.2	20.1
"Odorless" No. 3	6.7	6.4
Dentist type No. Z64	18.9	17.1
Beauty parlor shampoo FL	27.6	20.1
Expensive shampoo BD	26.1	25.7

Table 7

SOLVENTS	Odor threshold numbers
Samples	
Kerosene mixture	44.2
Deodorized kerosene	2.2
Turpentine A	27.5
Turpentine B	39.6
Turpentine C	25.8
Solvent A	39.8
Solvent B	30.2
Solvent C	27.5
Solvent D	33.1

Table 8 (below)

Insecticides; Insect Repellents

THE main purpose of the odor measurements of insecticides is the comparative evaluation of the solvents' odors. There are insecticides which have an odor of their own, such as pyrethrum, paradichlorobenzene, naphthalene and many other mothicides. When tested for the intensity of their odor they are handled in exactly the same way as disinfectants. On the other hand, when insecticides have only a slight odor of their own, or no odor at all, the manufacturers are very careful not to add any objectionable odor to the active ingredients. Solvents that have an objectionable odor are deodorized, and the efficiency of the deodorizing process is measured with accuracy by means of the Osmometer. Comparative brands of kerosene, gasoline, turpentine, benzene, toluene, and other solvents, are usually compared, and the numerical figures obtained are always reproducible. The manufacturer consequently is in a position to test, if needed, each drum of solvent that he buys, and to compare the odor threshold numbers during periods of several years.

These odor threshold numbers also

(*Turn to Page* 157)

Odor	Average odor threshold number	After 4 days exposure at 100° Centigrade: Odor threshold number	After heating and exposure to 60 hours in fadeometer: Odor threshold number
H-154 as is	3.0	3.0	7.0
H-155 as is	4.0	4.5	9.5
Household wax as is	0.0	0.0	0.0

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"Sanitization"—Another View

By George R. Weber*

Federal Security Agency
Public Health Service
Cincinnati

FROM the standpoint of resistance to bactericides (heat or chemicals), bacteria readily fall into two categories: (1) sporeforming organisms in the *spore* state, and (2) nonsporeforming organisms and sporeforming organisms in the vegetative state. Fortunately, disease-producing bacteria which may be spread from person to person through insanitary food utensils are generally nonsporeforming and would belong to the second category.

For the protection of the health of the public, it is desirable to destroy *all* disease-producing organisms which may be found on eating utensils. In bactericidal processes for food utensils there is no simple method of differentiating between nonsporeforming bacteria, which are pathogenic, and those which are not pathogenic, because the resistance to bactericides (heat and chemicals) of both groups is generally of the same order. Furthermore, in the determination of residual surviving bacteria on food utensils which have received a bactericidal treatment, there is no practicable reason why we need to differentiate between pathogenic and nonpathogenic, nonsporeforming bacteria. In order to destroy all pathogenic, nonsporeforming bacteria on utensils and also maintain an adequate margin of safety, *all* nonsporeforming bacteria should be destroyed. (This would include all organisms in category 2 above).

It should be kept in mind that besides the pathogenic nonsporeforming bacteria, we must also consider pathogenic filterable viruses and rickettsiae. Only meager information is available concerning the resistance of viruses and rickettsiae to bactericides. Whether we have destroyed all viruses and rickettsiae on a utensil when all of the pathogenic, nonsporeforming bacteria have been destroyed, is a question not yet entirely solved. Until sufficient information is available concerning these points, the most practicable "end point" to use would be one at which *all* nonsporeforming bacteria are destroyed on a utensil when it is lifted from the bactericide (heat or chemicals).

If a utensil is swabbed for residual bacteria at this point, the colony count should be zero except for spores which may have survived the bactericidal treatment. After the utensil has been stored for some time following bactericidal treatment, the residual bacterial count may increase and approach the commonly-used limit of 100 per utensil, due to organisms from air or from storage. Such a utensil which has had all the nonsporeforming bacteria destroyed (and presumably also pathogenic viruses and rickettsiae) would be considered safe for use (if properly handled and stored), and would be said to be "sanitized." The process is considered to be "sanitization."

Bacteriologists, even with limited training, should be able to interpret plates made to determine residual bacterial counts on utensils which have received a bactericidal treatment, and to differentiate between many colonies of nonsporeforming bacteria and an occasional colony of a sporeforming bacterium. Any such interpretation should be made on utensils swabbed immediately after being removed from the bactericidal bath, otherwise the bacterial colony count will reflect storage conditions and time of storage as well as bactericidal treatment.[1]

This observation of sporeforming bacteria surviving an adequate bactericidal process on food utensils has been made in a number of instances. For example, Mallmann[2] in 1937 reported: "Most of the colonies found on the dishes and silverware represented sporeforming bacteria which are quite resistant to heat. The presence of these organisms, particularly in such small numbers is of no sanitary significance."

A properly "sanitized" utensil should be a safe utensil. As it is lifted from the "sanitizing" bath, it should have no surviving nonsporeforming bacteria. A mere reduction in numbers of existing bacteria may permit pathogenic organisms to survive. Contaminated utensils do not necessarily have high bacterial counts, and even high bacterial counts may be reduced simply by dilution in sufficient water without a bactericide. "Sanitization" should not be considered as merely a reduction of existing bacteria to an "acceptable level" but rather a "selective killing" of certain types, (nonsporeforming bacteria), some of which may be pathogenic.

A "sanitizing agent" should be one with sufficient bactericidal potency to destroy the highest number of nonsporeforming bacteria which may normally be found on a food utensil in an exposure period and under conditions normally permitted. The "sanitization" process is not necessarily a "sterilizing" process; where complete sterility (including spores) is required, a more severe bactericidal process is indicated.

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1. Weber, George R., Sterilization of Dishes and Utensils in Eating Establishments. *J. Milk and Food Tech., 11*, 327, 1948.
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* Comments requested by N.A.I.D.M. program committee, based on a report entitled "Meaning of the Word 'Sanitization'" by Adrien S. DuBois, *Soap and Sanitary Chemicals*, May 1949.

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By Justus C. Ward*
Chief Pharmacological & Rodenticide Section
Insecticide Division,
P. M. A., U. S. D. A.

PRECAUTIONARY labeling, and what is necessary to make it adequate for the protection of both the manufacturer and the user of an economic poison, is not a new problem. That it has had long and careful consideration by many competent and conscientious people is proved by the form in which a large proportion of the labels have been submitted for registration under the Federal Insecticide, Fungicide and Rodenticide Act. In many cases, warning statements are inclined to be somewhat more emphatic than would be demanded as a minimum requirement under Federal registration.

This may be explained partially by the fact that certain state laws are slightly more restrictive than the Federal Act, and more particularly by the tendency on the part of the manufacturer to try to play safe rather than be sorry. This latter attitude is too often based on an insufficient information to make possible preparing a factual label, and so, the stronger cautions are given in order to be sure to meet minimum requirements.

While the greater danger from inadequate labeling is connected with the failure of the producer to recognize all the hazards inherent in a product and to warn against them, there is some disadvantage in over-emphasis of precautionary statements. This is why it is necessary to reserve the stronger comments for the more dangerous materials: so that the user will know that he is dealing with poisons capable of doing harm in proportion to the severity of the caution. The problem is not easy to solve, and even minor changes in label wording in many cases will have to await more information on complex formula effects.

The question is asked quite often as to why stringent warnings are required on economic poison labels, while equally dangerous products sold in other lines of commerce do not have to carry such statements. Perhaps the best explanation is found in the fact that economic poisons are sold for the purpose of killing. They are recognized as being potentially, if not actually, dangerous, and the public itself has favored the types of control over economic poisons which are illustrated by the many city, state and Federal statutes which have been passed and put into effect within recent years.

While fatalities from economic poisons are difficult to segregate in tabulations on all accidental deaths, and while information on non-fatal involvements are almost completely lacking, it might be revealing to refer to a few comments taken from Volume 29, Number 14 of Vital Statistics —Special Reports National Summaries issued March 14, 1949. This tabulates accident fatalities in the United States for a number of years prior to and including 1946. In general, these tables show that deaths from all accidents are decreasing slightly, that those from motor vehicles and barbituric acid compounds are increasing sharply, that those charged against arsenicals, cresol compounds, mercury and compounds, nux vomica and strychnine, carbolic acid and phenols, lye and potash, tobacco and derivatives, narcotics, methanol and other alcohols are decreasing consistently, and that those deaths from unspecified substances are remaining rather uniform. These facts are reassuring in one way—we are learning slowly to live a little more safely with the older poisons. It must be emphasized, however, that tabulations now available do not include data on such new materials as parathion, sodium fluoroacetate, tetraethylpyrophosphate or DDT, for example, so there is no reason for complacency.

In addition, the vital statistics records do not include any information on sub-lethal injury. When large numbers of people are to be exposed to poisons either in the form of the concentrate, the use dilution or the spray residues, this phase of hazard becomes pre-eminent.

Traces Poison's Course

IN illustrating the importance of complete precautionary labeling it might be interesting to follow a poison through the many stages from its manufacture to its elimination from food or its "decontamination," as it were. With many economic poisons, the hazard problem becomes acute with the shipment of some of the raw materials into the manufacturing plant. Effective warnings must follow such shipments from the prime producer of the chemical to the point where it will be used to synthesize the new pesticide. In most cases, containers for such shipments and their labels are subject to regulations which are prescribed by the Interstate Commerce Commission for handling dangerous articles. When the necessary chemicals are assembled at the manufacturing plant which is to combine them into the economic poison, the next hazard problem is associated with protecting the factory worker. This is an engineering problem whose solution will be divided among a number of specialists.

In the first place, the chemical engineer must design equipment to handle the process without permitting dangerous poisons to escape from the plant to contaminate outside air, water or soil, or to accumulate in the factory at levels above safety limits for the personnel involved in the various opera-

* Talk before the Mid-Year Meeting of the National Association of Insecticide and Disinfectant Manufacturers, Drake Hotel, Chicago, June 14, 1949.

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tions. In this complex assignment, the chemical engineer will have the help of the safety engineer and the industrial toxicologist, who is working in cooperation with the medical advisor. Throughout this stage of the process, the plant employees must be kept informed of all hazards by suitable placards — a phase of labeling — and by rigidly enforced safety regulations. If masks and protective clothing are needed to protect workers, it is the obligation of the plant management to see that they are worn constantly. Too often a worker may be willing to "take a chance" rather than wear a mask or protective clothing. Occasionally he will stay on the job too long—or will fail to wash deadly poisons off his skin. Carelessness should not be tolerated in any plant making poisons.

In every case where insidious effects are to be expected, periodic medical examinations of all personnel working in exposed locations must be made a part of the rigid safety program.

Labeling Principle Stated

AFTER a poison has been manufactured and packaged, it must be labeled with all the essential information to safeguard the next group who receive it. In some few cases, that class is the user, but generally it will be the formulators. A cardinal principle of caution labeling is that the label statement must be set up to warn of the most serious hazards which are present in the product *as it is available in the container covered by the label.* The exception which helps to prove the rule is the labeling which is needed on poisons moving to formulators. Such secondary manufacturers are acquainted with the hazards common to all highly toxic materials, and, accordingly, will not need to be warned so carefully about such routine points. Experience has shown, however, that caution statements covering new, strange, or unique dangers associated with handling poisons should appear on the labels — and, if necessary, should be explained in accompanying instructions or labeling.

It is interesting to note, however, that most of the precautionary labeling complications arise in formulator's labels. It is here that the effect of added ingredients appears to influence the toxicity factor, either adversely or favorably. It is here that the effects of such common ingredients as kerosene, for example, show up to make otherwise relatively safe formulas potentially injurious enough to justify some caution statements. Insofar as it is possible to do so with present knowledge, the warning should be judged on the basis of the formula as the product is sold.

It is interesting to interject here that the petroleum distillates have been responsible for a notable percentage of household accidents involving children. However, ordinary coal oil fuel seems to be implicated much more frequently than deodorized kerosene in the form of a solvent in economic poisons, which may be due in part at least, to factual labeling which is usually present on insecticides containing this material.

The fact that kerosene is seriously injurious, however, is forcing regulatory officials and industrial toxicologists together, to a new concept of precautionary labeling. It seems to be justifiable to limit the use of any claims for safety on preparations containing petroleum distillates and, in addition, to require warnings to keep such formulas away from children. Orderly correction of exaggerated labeling is being proposed and new precautions are being required, based on solvent hazards. This move is going to help save lives and to reduce unnecessary illnesses.

Extensive research has gone into learning the facts about economic poison effectiveness. Up to the present, however, there has been insufficient interest in studies to evaluate the hazards associated with using chemicals in pest control.

A few laboratories, both government and commercial, have done a pioneering job, but the field is opening much faster than competent pharmacologists can be trained to enter it. It will be essential, however, if we are to avoid repeated expensive changes in poison handling and labeling, for more effort to be put on laboratory testing before new and strange products are offered for public sale.

Manufacturers Must Do Research

UNTIL more extensive pharmacological and toxicological facilities are available through government-supported agencies, the burden of carrying on much of this laboratory work will fall directly on the manufacturer. Government is doing all it can through the Division of Pharmacology of the Food and Drug Administration and the toxicological work of the Public Health and allied services, but these groups are overloaded trying to catch up with problems continually arising out of the use of established economic poisons and so are not in position to undertake extensive research on all new materials.

After laboratory studies have been completed and distribution has started, there is another critical period in the life of a new poison. In the same way that the automobile manufacturer found that laboratory study failed to discover all the flaws in a new car model, the economic poison trade has learned to watch "use experience" to detect degrees of hazard which were not forecast during the testing in the hands of trained research workers or selected field observers.

Such "use experience" is a very valuable aid in determining actual danger from a formula. Occasionally it discloses that the laboratory conclusions were more apprehensive than practical use justifies, although too often the reverse is true.

Economic poisons, insecticides, rodenticides, fungicides—pesticides in general, are designed to repel or to kill pests. Certain new formulas contain chemicals which are more or less specific for certain pests — and have very low toxicities for beneficial forms of life. Since it is probable that more such chemicals can be found, aggressive research designed to speed such discoveries is to be encouraged.

One of the biggest problems in the economic poisons field, however, is that of deciding how to handle a new compound when it has been found to be useful. Similar decision had to be reached regarding the atomic bomb.

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When its power was discovered, the President and his advisors had to decide whether or not to use it. The exigencies of war aided in that particular decision. In this same way, consideration must be given to the question of whether or not the introduction of a new poison will be to the advantage of the greatest number of people. With steadily increasing populations, and with unsolved epidemics of rodent or insect-borne disease occurring periodically in various sections of the globe—to which U. S. air craft make regularly scheduled trips, — the importance of continued pesticide research is self-evident. The best defense against an unseen and intangible enemy is a series of more effective weapons. This war against the pests is no exception.

There is one final principle of economic poison usage, however, which must be emphasized. When a formulation has been completed and is ready for final evaluation from the hazard viewpoint, a decision must be reached as to whether or not precautionary labeling as proposed, is going to protect the purchaser. Sometimes that decision must be that no possible labeling will be enough to prevent undue accidents if the formula in question were to be permitted to be sold generally. The only alternative is restricted distribution. It is logical to expect persons trained in handling poisons to be able to use mixtures which should be denied to the less experienced. Just as many useful drugs go only to physicians and veterinarians.

Under such circumstances, the challenge to find an acceptable product should be picked up by the research chemist, the entomologist, the economic mammalogist and the pharmacologist.

There is a need for more thorough knowledge of the properties of an economic poison before it is put on the market. Sound progress is based on slow, painstaking work. Good precautionary labeling is the first step toward safety in handling economic poisons — take full advantage of it. While proper labeling cannot of itself insure complete safety, few formulas are at all safe without it.

NET WT. MARKING

(*From Page* 39)

loss of moisture impairs the efficiency or lessens value. With bread for instance, which also has a high moisture content, the consumer feels the loaf and if it has dried out she knows it is not fresh and will not buy it.

VII. Weight is no Measure of Value in Bar Soaps

THE consumer buys soap to use with water in washing anything from skin to dirty overalls. It is the cleaning power of the product she seeks, and I cannot over-emphasize the fact that this remains unchanged in the product no matter whether it is freshly made or whether it has dried out completely. It is to be used with water and the sudsing quality and detergent efficiency remain unimpaired regardless of moisture content. Bar soaps have not been sold by weight since the advent of brand names. They have been bought by the bar or cake on the basis of odor, color, detergent ability, gentleness on the hands and lasting quality; not on the basis of weight. To try to change this is not to progress—it is to go back to the days of our grandmothers. Weight is no measure of value in bar soaps.

VIII. Unwrapped Soaps Are Sold in Competition to Wrapped Soaps

THE regulation to mark net weight on bar soaps would apply to wrapped soaps and yet the same type of product sells competitively unwrapped. There certainly would be confusion and unfairness in such a differentiation. One might assume that the tendency would be to drive the protective wrappers off of bar soaps to get away from the annoyance of complaints. Certainly this would be a backward step.

IX. Sale by Numerical Count Fulfills Requirements of State Laws

MOST states carry laws which say in effect that the net quantity of the contents of a package must be conspicuously marked on the outside of a package in terms of weight, measure or numerical count. The consumer is accustomed to buying bar soaps by the unit and we believe the manufacturer is within his legal rights if he refused to put a net weight marking on his wrapper. I think any court in hearing a test case, after reviewing the facts just recited, would rule in favor of the manufacturer that he was complying with such a law.

X. CONCLUSION

IN conclusion, keep in mind that:

1. Soaps differ in moisture content from six to 40 per cent at time of manufacture.

2. Loss of moisture varies depending on age and other conditions.

3. This loss does not change the cleansing powers of the bar as originally produced.

4. Soap is unique in that weight is not a measure of value or performance.

5. There is no way for the manufacturer to mark a net weight and be reasonably accurate — a variation of over 20 per cent must be expected.

6. Instead of the consumer being benefitted and protected by a net weight marking she will be misled and confused.

7. The manufacturer will be put to endless trouble trying to explain numerous individual cases growing out of moisture evaporation.

For these reasons we think it would be a grave mistake to make a recommendation that bar soaps be marked with a net weight and we most earnestly urge that the National Conference on weights and measures forego making such a recommendation, which if adopted and if put into practice would result in much confusion, exasperation, and hardship.

—— ♦ ——

Plough Borrows $3,000,000

Plough, Inc., Memphis, manufacturers of household cleaning fluids, cosmetics, etc., recently borrowed $3,000,000 on 15-year sinking fund notes from Prudential Insurance Co. of America, Newark, N. J., to purchase and expand a Memphis factory in which eight of the company's units will be consolidated. The company is also reported to be planning to use about half of the money to retire funded debt.

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TECHNICAL BRIEFS

From Current Literature in the Sanitary Products Field

Rodenticide Pellets

A composition is prepared by mixing barium carbonate, zinc phosphide, or red squill with starch or flour and making the mixture into a dough with water. The dough is converted to pellet form. The latter is coated with fat containing fish oil. B. Lipton. British Patent No. 574,282.

Storage Tests on DDT

Two mixtures containing 90 per cent of DDT were prepared to give a free-flowing, fine-powder, and highly concentrated formulation. A nonwettable, noncaking powder was made from 90 parts by weight of technical DDT and 10 parts of a finely divided silica aerogel. A water dispersible powder was made to contain DDT 90, silica aerogel 8, and sodium salt of sulfonated ethyl oleate two per cent. None of the powders stored at room temperature showed great changes in surface-mean diameter. At 55°C. the surface-mean particle diameters of both preparations were approximately doubled within the first few days after grinding and remained almost constant afterward. E. L. Gooden and R. L. Updike, Jr. U. S. Dept. Agr., Bur. Entomol. and Plant Quarantine *E,758*, 3 pp. (1948).

Knockdown Agents

N-Butyl phthalimide, *N*-amyl phthalimide, *N,N*-dipropyl cinnamamide, added to solutions of DDT give knockdown effects. S. I. Gertler and H. L. J. Haller, to the U. S. U. S. Patents No. 2,436,919 and 2,436,920.

Roach Control

Practical control experiments were made with sprays containing pyrethrins and piperonyl butoxide and with dusts containing pyrethrins and piperonyl cyclonene. Excellent eradication of cockroach infestations was effected by these materials and good residual control was obtained. The residual effect was maintained by other sanitation such as cleaning and painting. E. L. Donohoe, *Pests 16*, No. 7, 9-11, 48 (1948).

Field Trials of Insecticides

A field method of assessing the toxicity of DDT and benzene hexachloride to various species of cattle ticks is to count the average number of ticks attached to the ears and flanks of the animals. In preliminary experiments, sprays containing 2.5 per cent of DDT and 1:10 of a commercial benzene hexachloride powder, killed all attached ticks at the time of spraying, but lost their residual effect in four days. Addition of coumarone resin did not increase the effectiveness of 2.5 per cent DDT emulsion. S. G. Wilson, *Bull. Entomol. Research 39*, 269-76 (1948).

Synthetic Wax

A homogeneous wax composition comprises at least 50 per cent by weight of paraffin wax, and a synthetic wax formed by the reaction of omega-hydroxydecanoic acid and an amine such as actadecylamine. The composition has a melting point substantially above that of the paraffin wax. T. F. Bradley, to Am. Cyanamid Co. Canadian Patent No. 453,790.

General Purpose Polish

A general purpose wax polish should contain 20-30 per cent of wax, with a relatively high proportion of hard wax, which is the luster producer. A wax base is suggested as follows:

	per cent
Carnauba wax	4
Candelilla wax	40
Ozokerite	6
Paraffin, hard	50

This base is mixed with white spirit to give the final product. The high-melting waxes are placed in the bottom of steam-heated pans, with the lower melting-point waxes around the sides. Solvents should be piped into the pans, using a portable paddle mixer to insure even distribution. The melt is run off at the bottom with steam-jacketed pipes. G. W. Wood, *Soap, Perfumery, Cosmetics 21*, 1133-6 (1948).

Pyrethrum Synergist

Compounds such as *N*-butyl benzamide, *N,N*-dibutyl benzamide, *N,N*-diisobutyl benzamide, and *N*-amyl benzamide, show synergistic action with pyrethrum. S. I. Gertler and H. L. J. Haller, to the U. S. U. S. Patent No. 2,416,522.

Constitution of Insecticides

Examination of a number of insecticides for potency against *Melophagus ovinus* showed that insecticides containing fluorine were especially effective. The toxicity of organic contact insecticides of like constitution decreased with increasing atomic weight of the halogen. It is important for optimum toxicity that the halogen atom be in the para-position in the aromatic nucleus. A systematic investigation of the contact toxicity of the fundamental halogenated hydrocarbons showed that the cyclic compounds are superior to acyclic compounds. In halogenated hydrocarbons which contain both aromatic and aliphatic groupings, lack of symmetry is an important factor. R. Riemschneider, *Chem. tech. Fabrikant 43*, 73-4; through *Chem. Abs.*

New Contact Insecticide

A mixed halogenated hydrocarbon of the diaryl alkane type, containing 1, 1, 1-trichloro-2-(4-fluorophenyl)-2-(4-chlorophenyl) ethane, and 1,1,1-trichloro-2,2-bis (4-fluorophenyl) ethane, has been found effective against lice, flies, bedbugs, etc. Powders containing less than one per cent were found to be more effective than powders containing 10 per cent of DDT. R. Reimschneider, *Suddeut, Apoth.-Ztg. 87*, 62; through *Chem Abs.*

Mosquito-repellent Cream

A mosquito-repellent cream based on stearic acid, contains four parts of citronella oil and 16 of pyrethrum. as active ingredients. S. Siddiqui, Indian Patent No. 34,410.

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Comparison of Disinfectants

The disinfectant power of quaternary ammonium compounds and of hypochlorites were compared, using a mixed culture of *S. aureus, E. coli,* and *E. typhi,* containing 33 x 10^6 organisms of each type per ml. The hypochlorite used contained over 3.5 per cent of available chlorine in the form of sodium hypochlorite, less than five per cent of sodium chloride, and the balance alkaline sodium phosphate. Six commercial quaternaries were employed. Considerable variation was found in their germicidal effect.

Hardness in water reduces the germicidal power, as do anionic wetting agents commonly found in cleaning compounds. Organic materials, such as milk solids, also reduce the germicidal action of quaternary compounds and that of hypochlorite. However, with milk solids, hypochlorite was effective at a lower concentration than any of the quaternaries tested. Lowering the water temperature below 68°F. reduces the disinfecting power of the quaternaries. Precipitates formed in hard water by the water-softening action of certain alkaline salts absorb and remove from solution part of the quaternaries; these precipiates do not adsorb hypochlorites. L. Shere, *Brewers Digest 23* No. 8, 52-4 (T 103-5) (1948).

Rodenticide Toxicity

Fluoroacetophenyl hydrazide is only slightly water-soluble and is readily accepted by laboratory rats and mice. It was not tried on wild rats. The oral LD50 in mg. kg., is 9.1 plus or minus 2.7 for Wistar rats, about 45 for C. F. mice, 0.25-0.50 for cats, and 0.1-0.25 for dogs. L. Karel, *J. Pharmacol. Exptl. Therap. 93,* 287-93 (1948).

Pyrethrum Aerosols

By using solvents which may also serve as propellants, for the extraction of pyrethrum flowers, solutions of pyrethrin are obtained which contain a higher ratio of pyrethrin to oleoresins than is possible by the use of conventional solvents. The solutions are suitable for use as aerosols without further processing except dilution with enough solvent to give a one per cent solution. Dichloro difluoro methane and similar compounds are suitable solvents. W. W. Rhodes, to Kinetic Chemicals, Inc. U. S. Patent No. 2,-449,671.

Fungusproofing Compound

Emulsions of either the oil-in-water type or the water-in-oil type with a halogenated 8-hydroxyquinoline derivative are useful for fungusproofing cloth, paper, wood, and other cellulosic materials. A typical formulation is as follows: Copper 8-hydroxyquinoline 9.5 parts by weight, modified alkyl resin 11.4, chlorinated biphenyls 19, ammonia 5.7, mineral spirits 163.4, and water 171 parts.

The copper salt, alkyd resin, and chlorinated biphenyls were mixed on heated rolls at about 14°C. Ammonia was added to this mixture and allowed to react with the resin to form the ammonium soap. The resulting mixture was dispersed in mineral spirits, then water was added and the entire mixture was passed through a colloid mill to form an emulsion. The composition was effective on treated materials buried in moist soil for several weeks. Laboratory tests were made with *Chaetomium globosum, Aspergillus niger, Penicillium* sp. and *Metarrhizium* sp. P. G. Benignus, to Monsanto Chemical Co. U. S. Patent 2,457,025.

Rotenoid Solvent

The esters of para-isopropyl benzoic acid, particularly the butyl ester, have high solvent power for rotenoids. Solutions containing 30 per cent of rotenoids at 4°C. may be prepared. L. B. Kilgore, to U. S. Industrial Chemicals, Inc. U. S. Patent No. 2,-415,802.

Copper Fungicide Patent

Copper-aluminum salts combined with fatty acids or protein are good fungicides having high toxicity and good spreading and sticking properties. They are compatible with oil emulsions and with pyrethrum and rotenone. The material may be applied as a dust or spray. A. A. Nikitin, to Tennessee Copper Co. U. S. Patent No. 2,456,767.

Flame Resistant Wax

Flame-resistant, nontoxic, synthetic waxes are prepared by reaction of equimolar quantities of a mixture of monoamylamines and tetrachlorophthalic anhydride, until an acid number of 35 is obtained. Addition of aniline raises the melting point of the product. G. J. Bohrer, to General Electric Co. U. S. Patent No. 2,443,888.

New Laundry Chemical

Laundry being washed is impregnated with a mildew-preventing chemical which is a concentrated solution of sodium pentachlorophenate, made by the Monsanto Chemical Co. The process will treat 300 pounds of laundry at a cost of a few cents and can be fitted into normal commercial laundry washing procedures.

The treating bath is prepared by adding eight ounces of a 30 per cent solution of the fungicide to about 40 gallons of water in a standard washer. Clothes are rinsed in this for five minutes. The slight acidity of the souring rinse, which follows, converts the water-soluble chemical in the fibers into a fixed mildew inhibitor, where it will remain until the garment is re-washed. The life of fabrics may be increased as much as 60 per cent by elimination of the formation of mildew stains, which have normally been removed by the bleach. *Chem. Trade J.*, 123,449 (1948).

New Insecticides

Of 76 compounds tested, the following were very toxic to three or more species of insects: Chloromethyl 4-chlorophenyl sulfone, chloromethyl phenyl sulfone, methyl-4-chlorophenyl sulfone, and 1,1,1-trichloro-2,2-bis (3,5 - dichloro - 2 - hydroxyphenyl) ethane. V. G. T. Bottger and A. P. Yerington, U. S. Dept. Agr., Bur. Entomol. and Plant Quarantine *E744,* 14 pp.

SOAP ON SKIN

(*From Page 47*)

Since no significant differences were noted among the other 5 products, in respect to the cutaneous reactions, which they elicited, all findings

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in tests of soaps B to F, inclusive, have been pooled in calculations of average scores. Vertical lines intersecting the average curve give the range of maximum and minmium scores from the respective averages in all tests of the 5 soaps.

On the first day of test periods, no differences were noted in comparative tests between soap A and any of the other 5 soaps in respect to cutaneous reactions which they produced.

During the first week of the test period, 5 subjects failed to show any visible cutaneous reactions to any of the 5 products which were tested in comparison with soap A and the maximum score recorded for any subject was a moderate erythema (2.0 reaction). Thereafter, however, all subjects exhibited evidences of cutaneous reactions to all of the products, from B to F, inclusive, which were graded as greater than mild erythemas.

The average curve indicates continuously rising scores for cutaneous reactions to all of the 5 products which were included in comparative tests with soap A. After the tenth day, all subjects exhibited cutaneous reactions which persisted during the interval of examination of their hands on an afternoon and the subsequent inspections on the following morning.

(To be Concluded)

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WAGE HEARING

(From Page 43)

Also present were: J. H. Taylor, representing Procter & Gamble Co., Cincinnati; Miss Ann C. Wolfe, representing the National Association of Insecticide & Disinfectant Manufacturers; Morris Sacharoff, member of the staff of the Minimum Wage Section, Wage Determination and Exemptions Branch, Wage and Hour and Public Contracts Division, Department of Labor; Benjamin Goldstein, Public Contracts Unit.

Considerable discussion arose at the hearing over the coverage of synthetic detergents as part of the definition of the products of the soap industry. Louis A. Doering included the following statement for the record on the definition of the soap industry: "The following shall be considered part of the Soap and Glycerine Industry: Any factory, company, plant, division or subdivision engaged in, a.—combined manufacture, packaging and sale (or) b.—fabricating, mixing, compounding, or packing for sale of any foaming or sudsing type of surface active agent, or any foaming or sudsing type of organic synthetic detergent to be used in place of . . . soap for direct consumer use from the package in which sold." Mr. Doering also read a statement advocating inclusion of synthetic glycerine manufacture as part of the soap industry in the definition of the industry.

In his statement, Mr. Peet said: "I do not presume to say what any minimum (wage) should be. I do think that the situation that applies to small soap makers should be very carefully considered because they are the ones who will be primarily affected by the minimum, not the larger companies." In the questioning following his statement Mr. Peet agreed that it would be difficult to break out potash soap manufacturers for special treatment in the sense of establishing one rate for potash soap and another rate for other types of soaps.

Sylvia Pacelle of the Manufacturing Chemists Association stated that the group she represents is "primarily interested in the possibility of a conflict between (the) proposed definition to include synthetic detergents with the over-all definition of the chemical industry."

E. B. Coyle of Fels & Co., Philadelphia, asked to go on record as being in favor of including synthetic glycerine and synthetic detergents along with soaps, and as not being in favor of special rates for learners or apprentices. He also expressed the feeling that the suggested $1.15 an hour minimum wage rate is too high.

F. M. Hoffheins of the Chemical Division of the Office of Domestic Commerce of the Department of Commerce, stated that his division considered the manufacture of synthetic glycerine to be outside the soap industry. He gave as the reason: "Because it is a synthetic chemical made from petroleum fractions and is an entirely different process from that used in making soap and the by-product glycerine." He also stated that his division wished to go on record as favoring the exclusion of the manufacturer of "alkaline detergents" from the soap industry definition. On the subject of including synthetic detergents in the soap industry, he stated: "It is our opinion that it would be extremely difficult to formulate a definition which would include soap and only those packaged synthetic detergents competitive with soap which would be compounded from purchased active ingredients, and exclude the manufacturer of a bulk synthetic organic detergent."

The distinction between synthetic glycerine manufacture and the production of glycerine as a soap by-product was outlined by Dr. Lowell Kilgore of the Department of Commerce, who pointed out that there is no interchangeability of workers for the two processes of manufacturing glycerine.

On the question of wage minimums being determined by the number of employees in a plant, Benjamin Sigal of the Gas, Coke and Chemical Workers of America, stated his opposition to such distinctions based on size.

INSECTICIDES

(From Page 131)

cently worked out suggestions for a utility alley for sorting, holding, spraying, loading and spraying livestock with plans for a spraying alley with catwalk for spray operators, sorting alley, and loading chute.

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by Trenner, *et al.* (39). Impurities have no effect on the accuracy of this method.

Methods of Analysis for Organic Phosphorus Compounds

Of the three organic phosphorus insecticides — hexaethyl tetraphosphate, tetraethyl pyrophosphate and parathion — the first two have been shown to be mixtures (40). Both mixtures contain tetraethyl pyrophosphate as the principal active ingredient. Several methods have been proposed for the determination of this compound in the commercial products (41, 42). All are based on the separation of the tetraethyl pyrophosphate from the related ethyl phosphates followed by its hydrolysis to diethyl orthophosphoric acid and titration with standard alkali. Both hexaethyl tetraphosphate and tetraethyl pyrophosphate are soluble in water and are rapidly hydrolyzed to monoethyl and diethyl orthophosphoric acid. This rapid hydrolysis to nontoxic products greatly limits the duration of the insecticidal effectiveness of tetraethyl pyrophosphate, but it also eliminates the danger of toxic residues on the crops treated.

The only method that has been described for the assay of technical grades of parathion and its formulations is that of Bowen and Edwards (43). The method makes use of the polarograph. The electrolysis is carried out in an acetone-water solution with potassium chloride as the electrolyte and gelatin as the suppressor. An accuracy of ± 1 per cent is obtained.

For spray residues of parathion Averell and Norris (44) have developed a method that is sensitive to about 20 micrograms. The method is based on the reduction of the nitro group to the amine, diazotization, and coupling with N-(1-naphthyl) ethylene diamine, which gives an intense magenta color with an absorption peak at 555mμ. Edwards (45) has found that commercial samples of benzene, which is commonly used for stripping residues from plant material, give an identical color by the method. The interfering substance can be removed by distillation of the benzene. The oxygen analog of parathion, diethyl *p*-nitrophenyl phosphate, gives the same color as parathion by the method. This oxygen analog is stated to be much more toxic than parathion to warm-blooded animals and it has been suggested that parathion is converted to the oxygen analog on exposure to the air. However, no definite evidence has been adduced that this compound accompanies spray residues of parathion, and laboratory experiments have failed to confirm the reaction.

Analysis of Piperonyl Compounds

Of the four piperonyl compounds that have received considerable commercial attention as insecticides, a method of analysis is available for piperonyl butoxide[2] and sesamin. Piperonyl butoxide gives a blue color on treatment with a reagent comprising tannic acid in a mixture of phosphoric and acetic acids. Satisfactory results can be obtained in the presence of small amounts of pyrethrins, but larger amounts tend to obscure the color. A modification of the method (46) which overcomes this difficulty is the removal of the pyrethrins by saponification with alcoholic sodium hydroxide prior to carrying out the test.

The method proposed for sesamin (47) is based upon the observation that a mixture of perchloric acid and hydrogen peroxide gives a greenish-yellow color with any vegetable oil containing sesamin. The color persists for about six minutes, and this allows ample time for comparison with a standard solution containing known amounts of sesamin.

Interpretation of Analytical Values

The interpretation of analytical values obtained in residue analyses is of utmost importance. In most cases the insecticide residue is present in small amounts in combination with relatively large amounts of extraneous materials. In order to determine the residual insecticide it is necessary to make a separation of the insecticide to provide for ready handling. In the separation process, which is usually made with the aid of organic solvents, small quantities of waxes, plant pigments and coloring matter are also obtained, which sometimes offer considerable trouble in the subsequent operations. For example, in the total-chlorine determination silver nitrate may react with other elements or radicals than chloride ion. In colorimetric procedures by-products and impurities other than the residue may develop colors which give readings on the photometer. It is therefore highly important that an analysis be made on an untreated sample of the same type of material and a correction applied to the treated sample. The sensitivity of the method employed and the size of the sample are also important factors. By means of colorimetric methods microgram quantities of a residue may be detected whereas titration procedures usually are not that sensitive. It should be remembered also that 0.5 mg. of residue is equivalent to five ppm. on a 100-gram sample but only 0.5 ppm. on a kilogram sample. Where the residues are one ppm. or less, it would appear to be desirable to have not less than a one-kg. sample, and results should not be based on a single determination.

[2] H. A. Jones, private communication.

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ODOR MEASUREMENT

(*From Page* 139)

can be determined on the finished product as well as on the solvents, after any shelf life period, as well as immediately after the product leaves the plant.

Insect repellents present another problem. Most of them have a strong odor of their own, and as they are applied directly on the skin or on clothes, it is necessary that the odor be as light as possible and not too objectionable.

It is well known also that certain individuals are allergic to certain balsamics used in the composition of insect repellents, and it has been found that deodorizers or masking compounds incorporated with these balsamics do not cause the same reaction on the mucous membranes of the respiratory tract of allergic persons. These observations were made after investigations involving a great number of odor measurement tests by means of the Osmometer.

Table 9

INSECTICIDES		
Formulae	*Nature of odor*	*Odor threshold numbers*
K 11	objectionable	27.6
DC 7	pleasant	26.8
CH 2	neutral	25.2
DDTP	repulsive	39.7
PCD	pleasant	37.6

Fungicides

WHEN fungicides are applied to fabrics, plastics, or any other material to be used in the home or any rather close space, it is important that the odor they impart to the treated product be of a non-objectionable nature and of a very low intensity. No housewife would ever buy a shower curtain having a phenolic odor or a mattress whose ticking had been treated with a mildew proofing compound imparting an odor. Some fungicides have an odor that gradually disappears after a relatively short period of time, while their mildew proofing properties remain unchanged. In this case it is possible to treat the materials to be used in the home, and to sell them only when the odor has disappeared by itself. However, it is often more economical to use a deodorant or masking agent in conjunction with these fungicides, and to have the masking or deodorizing properties evaluated by means of the Osmometer. The strongest odors in fungicides are found in such compounds as phenol derivatives, chlorophenols and tar derivatives. These odors are not too objectionable when they are used to treat awnings, tent materials, tarpaulins, sails and cordage. On the other hand, we have found, that under certain circumstances, oxidation or perspiration renovate the odor of some of these compounds, and a mattress ticking which is odor-free when sold would acquire a definite chemical odor after being used for various periods of time. Chemical tests conducted in conjunction with the use of the Osmometer may prevent such changes in the treated materials.

Rodenticides and Rodent Repellents

GENERALLY speaking, rodenticides do not have strong odors. They are often marketed in the form of pastes which contain as active ingredients phosphorus, arsenic, metallic salts, or organic compounds such as 1080 and Antu. Odor measurements, therefore, are not of great assistance to rodenticide manufacturers. However, they are valuable to manufacturers of rodent repellents.

The most efficient rodent repellents can be divided into two groups, as far as the measurement of odors and the materials that are used in their manufacture are concerned. The first group is the tar derivatives; the second group consists of chemicals that do not contain any of the

Tables 10 (upper) and 11, Deodorizing Action of Fungicides

Odor		*After 10 minutes exposure*		*After 30 minutes exposure*	
	Average odor threshold number	*Odor threshold number*	*Per Cent of odor removed*	*Odor threshold number*	*Per Cent of odor removed*
Mattress ticking as is	9.1				
Perspiration as is	16.0				
Mattress ticking with perspiration		18.2	43	18.2	43
Urine as is	12.1				
Mattress ticking with urine		14.0	60	14.0	60

Odor		*After 10 minutes exposure to perspiration*		*After 30 minutes exposure to perspiration*	
	Average odor threshold number	*Odor threshold number*	*Per Cent of odor removed*	*Odor threshold number*	*Per Cent of odor removed*
Perspiration	16.0				
Sample A treated ticking	8.3				
Sample B treated sheeting	5.9				
Sample A treated ticking with perspiration		15.1	57	15.1	57
Sample B treated sheeting with perspiration		14.1	49	14.1	49

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tar compounds. The tar derivatives have been known for a long time as giving excellent protection against mice, rats and even larger rodents. They are largely used in ships for the processing of various materials such as ropes, cordage, burlap or duck bags, jute, wood, wrapping paper and paper board, to which they give very satisfactory protection. However, there are cases where packaging materials are used for the shipping of foodstuffs, and in these cases tar derivatives cannot be used, because of the odor they impart to foods.

After testing a great number of rodent repellents in the second group, we found only two processed packaging materials which, because of their efficiency and low toxicity, could be used for foodstuffs. All others were either too toxic and therefore dangerous for use to pack foods, or their efficiency was limited. For instance, some are repellent to mice and laboratory rats, but not to field rats; some are not repellent to laboratory rats or field mice, but only to laboratory mice.

Next to efficiency and low toxicity come the odor measurement tests, which necessarily have to be conducted on foods wrapped with or packed in materials processed with these tar-free rodent repellents. These two tests are always conducted simultaneously on foods after preliminary tests on materials have been found to be satisfactory. These tests are not only conducted on fresh material, but after various periods of aging and contact with foods, and also in various conditions of moisture and temperature. This is very important. Some of these products dissolve readily in water. If the packaging material is submitted to rain, the food content in the package may become contaminated by such a dilution of the processing rodent repellent. Lower temperatures may cause the cracking of the material and consequently leave an open space for the rodents. Elevated temperatures may volatilize or decompose the chemicals, and thus greatly increase the normal concentration in the food, or produce new chemicals of an unknown toxicity.

It should be remembered that according to official statistics of the U. S. Government, damage estimated at over four billion dollars annually is caused by rats on foodstuffs alone, and about one billion eight hundred million dollars by mice. The damage caused to the packaging materials or to the conveyances, such as trucks and ships, has to be added to the above figures. Consequently the protection of foodstuffs by rodent repellents is one of the most important economic and sanitary problems the country is facing today.

Odor measurement tests and taste tests enable prospective users of packaging materials treated with rodent repellents to find the most satisfactory compounds for each type of food stuff. A great deal of research is now being conducted by manufacturers in their own or independent laboratories on the treatment of various materials, such as fabrics, plastics, and plasticizers, to find the most suitable and efficient formula for each type of food.

The diversity of foodstuffs and food packaging materials is so great that there is practically no limitation to the processing possibilities of these materials, whether it be a flour bag, cheese cloth, wooden crate, or cardboard box. Tremendous work still lies ahead in the investigation and betterment of the processing methods of these various materials, but it is to be hoped that all efforts will be combined, and that all satisfactory results will be available to everybody concerned.

Herbicides

THIS survey would not be complete if a few words were not said about herbicides. We have in mind particularly the newest formulae, such as 2,4D and similar compounds. You probably know about the 2,4D formulae found to be so attractive to certain animals that the damage they caused was greater than the presence of unwanted weeds in lawns and gardens.

In some cases cats were responsible, in others, dogs were attracted to the places where the compounds had been used. It was very difficult to prevent them from destroying the lawn or the flowers by running and jumping after each other.

Odor measurements were conducted on modified formulae in comparison with the original one, and permitted the establishment of compounds that did not have the same inconvenience and were not objectionable to man. It is a fact that some other compounds had odors of their own which either were objectionable or would combine with the normal odor of the flowers and change them. Some herbicides were also found to be repellent to bees and other pollinating insects.

The odor measurement tests were conducted in close cooperation with the manufacturing chemists, and eventually with agriculturists and entomologists.

Conclusion

CERTAINLY there are many other uses of the Osmometer which have not yet been perfected or even tried. We have mentioned only the applications for which we had the greatest number of requests, and in which our staff has acquired recognized experience. The demonstrations which will follow will prove to you that its use is simple, and that anybody in good health and with a normal sense of smell can use it. Any beginner is able to measure odors of great intensity with a relative approximation. However, in order to measure odors of low intensity and to make comparative examinations it is necessary to have scientific and progressive training in the use of the apparatus. From our experience we have found that methodic training for about six months is required to enable a technician to make all kinds of odor measurements and comparative studies with great accuracy. This is not a long period when one realizes that nobody can measure odors all day and continue to obtain accurate results. There should be sufficient rest periods between various measurements in order to obtain reproducible results. This applies as well to the training period as to the normal periods of use after training. We would say that it is even more important during the training period, as the beginner feels much more fatigue after a few odor measurements than the seasoned Osmometer technician.

An interesting fact in connection with the use of the Osmometer, is that we have never seen a case where practice in its use had been forgotten at any time, even after relatively long periods of inactivity.

Those who have had training in the use of the Osmometer are also able at any time to obtain results that can be compared with those of any other trained technician.

The Osmometer is a useful piece of apparatus for manufacturers of insecticides, disinfectants, and fungicides. It is indispensable in laboratory research and production control of air deodorants. It is also very helpful in the formulation of disinfectants, insecticides, fungicides, insect and rodent repellents, detergents, cleansing agents, and herbicides. The use of the Osmometer is the most accurate way of comparing the intensity of odoriferous products and of evaluating their lasting properties.

Michigan House Bill

The Michigan House Bill No. 362 covering insecticides following passage in different forms by the House and Senate recently went to conference committee where the differences were resolved. The conference committee insisted on retaining the House version of $5 per brand registration fee for the first 10 brands and $2 per brand thereafter. The bill contains the following provisions on ingredient statements: for economic poisons a statement of the name and percentage of each active ingredient, together with the total percentage of inert ingredients; in the case of household disinfectants or germicides and insecticides, a statement of the name of each active ingredient together with the name of each and total percentage of inert ingredients, if there be any; in case an economic poison contains arsenic in any form the label requires a statement of the percentage of total and water soluble arsenic, each calculated as elemental arsenic.

Batchelor Bridgeport V.P.

Mead W. Batchelor was recently advanced from the position of vice-president in charge of production to executive vice-president of Bridgeport Brass Co., Bridgeport, Conn. He has been with the firm since 1933 and was first elected a vice-president and director in 1945.

New wax type

GLASS POLISH

glass cleaner and waxer . . . newly developed and different product . . . in 55 gal. drums and other standard packages for the trade . . . ask for sample of this new product.

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FLOOR WAX

COMPARE

The consumer wants high lustre at a competitive price . . . he gets it in our #1948 Wax . . . compare its high gloss against any other wax . . . send for sample and price . . . make your own comparison test.

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Quality
SHELLAC

BONE DRY BLEACHED
#65 REFINED EXTRA WHITE
#67 SEMI-REFINED

Particularly recommended in aqueous solution — because

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- REQUIRING LESS ALKALI
- GIVING HIGHER LUSTRE
- GREATER DURABILITY
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- MORE WATER RESISTANCE

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TRADE NEWS

Huntington Sells in Canada

Purchase of Huntington Laboratories of Canada, Toronto, by J. T. Bentham and D. A. White was announced recently by directors of the corporation. At the same time it was announced that Mr. Bentham was elected president and director of sales and Mr. White vice-president and general manager. Both men are experienced in the merchandising of products in the industrial, institutional and hospital fields.

George Simmonds Marries

George L. Simmonds, chairman of the board of U. S. Sanitary Specialties Corp., Chicago, was married there May 12 to Fannie L. Cohen, widow of the founder of Union Asbestos Co. The ceremony was performed by Judge U. S. Schwartz. W. S. Jessop of U. S. Sanitary Specialties was best man. The couple spent their honeymoon at the Greenbrier, White Sulphur Springs, W. Va. Mr. Simmonds celebrates his 25th year with U. S. Sanitary Specialties Corp. this month.

Sales Execs. Name Kelly

Leo J. Kelly, executive vice-president of the National Sanitary Supply Association, Chicago, was recently appointed to the board of directors of the Chicago Sales Executives Club.

Pomerantz Speaks at U. M.

Charles Pomerantz of Bell Exterminating Co., New York, and chiefly responsible for the discoveries of the interrelationships existing between the mite, *allodermanyssus sanguineus,* mice and humans, leading up to the determination of the cause of the disease Rickettsialpox, recently spent three days at the University of Massachusetts, Amherst, where he addressed a number of science groups. He talked on the field of "Communicable Diseases" before the department of bacteriology and public health and, on the same day, spoke before the Bacteriology Club. The following day Mr. Pomerantz addressed the Fernald Entomological Club of the university and gave a detailed account of the disease, the interrelationships of the various organisms concerned, and other developments leading up to the discovery of its cause during the summer and early fall of 1946. Another group to hear Mr. Pomerantz was the Visiting Nurses' Association of West Springfield, Mass., which he visited and spoke before with Dr. Walter W. Lee, who is in charge of public health work at the University of Massachusetts.

CHARLES POMERANTZ

Professor Herms Dies

Professor William B. Herms, 72, emeritus professor of entomology and parasitology died May 9, in Memorial Hospital, Berkeley, Calif., of a heart attack. He was consulting entomologist and parasitologist to the State Board of Health and was a past president of the Entomological Society of America. He was noted for his research in malaria control. He is survived by his widow, Lillie Magly Herms and three sons, William M., Herbert P. and George W. Herms.

Ban Chlordane for Dairies

Insecticides containing chlordane should not be recommended for use on dairy animals, or on forage or other feeds for dairy animals or on animals being finished for slaughter, according to a recent ruling by W. G. Reed, chief, Insecticide Division, Livestock Branch, U.S.D.A. A similar ban on DDT for use around dairies and on dairy cattle or livestock was announced late in April. Labels on insecticides containing chlordane must bear a caution phrase, such as "Do not use on dairy animals" or "Do not use on forage crops to be fed dairy animals or those being finished for slaughter."

Issues Quarterly On Rats

The rat control section of the St. Louis health division recently issued another of its quarterly bulletins called "The Rat Controller." The current number contains information on methods of rat extermination and outlines progress made in an extensive program to cut down the rat population of the city. Copies are distributed free of charge.

Honor Dr. Patterson

Dr. Austin M. Patterson, chemical editor of Webster's Dictionary and assistant editor of "Chemical Abstracts," recently was awarded the Documentation of Chemistry, an award presented by the Dayton section of the American Chemical Society. Dr. Patterson is a retired vice-president of Antioch College, and under a grant from the N.A.I.D.M. compiled a list of definitions of terms in the sanitary chemicals field.

To Hold Maintenance Show

A plant maintenance show and conference devoted to installation, operation and maintenance of equipment and services in factories and warehouses is scheduled to be held in the Cleveland Auditorium, Cleveland, O., Jan. 16 through 19, 1950, it was announced recently by Clapp & Poliak, Inc., New York, managers of the exposition.

Boconize Names Beavers

Charles G. Beavers, Jr., formerly southeastern sales manager of the company, was recently appointed vice-president of American Boconize Corp., New York.

Specialists . . . FOR OVER 25 YEARS

In the manufacture of

No Rubbing Wax
Liquid Wax (Solvent Type)
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Rug and Upholstery Shampoos
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WATER EMULSION PASTE WAX

NUTRA SHEEN "The Neutral Cleaner"

Our No Rubbing Liquid Wax is Approved by
THE UNDERWRITERS LABORATORIES AND BY THE RUBBER FLOORING MANUFACTURER'S ASSOCIATION

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Mfrs. of Floor Waxes—Soaps—Cleaners—Polishes
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GREATER KILL

FOR YOUR INSECTICIDE SPRAYS

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P-D INSECTI-SOL

Penn-Drake Insecti-Sol is the answer to the demand for an insecticide base with longer float . . . deeper penetrations . . . and freedom from odor and stain. This 100% volatile base is highly recommended for use as a base for all types of insecticide sprays, but it is particularly outstanding as a solvent for DDT solutions or DDT crystals in low concentrations.

P-D SUPER-SOL

This super-refined solvent is especially efficient as a base for mothicides. It also has many qualities which make it ideal for use in odorless paints, home dry cleaners, DDT residual sprays, metal parts cleaners and countless other applications where a high flash is necessary.

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BUTLER, PENNSYLVANIA
Branches: Cleveland, Ohio and Edgewater, N. J.
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New West Booklets

West Disinfecting Co., Long Island City, N. Y., recently announced publication of two booklets, one of which described the firm's liquid soap and soap dispensers, the other describes the company's new hand-operated insecticide sprayer.

NEW WEST SPRAYER

The booklet on liquid soap and soap dispensers describes the various types of soaps available and devotes considerable space to newly-designed, soap dispensing equipment. The booklet on the hand-operated insecticide sprayer describes the company's "Mistorizer," a new insecticide spraying device which requires no filters, oiling or greasing. The unit can be run either wet or dry and is said to give instantaneous and continuous full pressure spraying. No condensation of steam or water is necessary to dilute the insecticide. Copies of the booklet may be obtained by writing the company.

"Dowflake" Marketed

Dow Chemical Co., Midland, Mich., recently announced that it is marketing a 25-pound bag of calcium chloride called "Dowflake" through hardware and lumber dealers for home basement dehumidification and dust control.

Asks Insecticide Study

A resolution calling for a full-scale investigation of the effect on public health of the use of chemicals (including insecticides), compounds and synthetics in food production was introduced in the House of Representatives, recently. The resolution, HR 207, was introduced by Frank B. Keefe, (Rep., Wis.), who also introduced a bill, HR 4572, which would amend the Food, Drug and Cosmetic Act by giving the Federal Security Administration power to subpoena witnesses to testify at food standard hearings. In his resolution, Representative Keefe recommended that a seven-man committee composed of members of the House of Representatives, appointed by the Speaker of the House, be set up to investigate, among other things, "the nature, extent and effect of the use of pesticides and insecticides with respect to food and food products, particularly the effect of such use of pesticides and insecticides upon the health and welfare of the consumer by reason of toxic residues remaining on food and food products as a result of such use. . . ."

Mr. Keefe later revealed that his resolution had the support of the American Bakers' Association, whose chairman had written that he agreed with his "laudable objective."

Cadie Neuberg Schulz Reps.

Cadie Chemical Products, Inc., 549 W. 132nd St., New York, was recently appointed sole sales representatives in the United States for Neuberg Schulz Silica Mines, Neuberg on the Danube, American Zone, Germany. Neuburg Schulz siliceous chalk in fine powder form is used in dry and liquid metal polishes.

Benton Wilcoxon, below, manager of the new Powell plant of John Powell & Co. in Huntsville, Ala.

Ace Dispenser Expands

Ace Dispenser Co., Buffalo, N. Y., manufacturers of powder and liquid soap dispensers for the trade, has recently doubled the floor space of their plant, according to an announcement by Charles W. Hoppe, head of the company. At the same time, he has announced several new powdered soap models added to the Ace line with heavy steel lock - to - wall mountings which lock inside the dispenser bodies, and equipped with spring steel caterpillar type agitator with rounded surfaces to prevent flat pressures and clogging. New catalog and folders of the Ace line are available from the company at 267 Genesee St., Buffalo 4. The firm started several years ago by Mr. Hoppe as a hobby, now does a coast-to-coast business as well as in the export field.

CHARLES HOPPE

Jap Insecticide Writings

The March, 1949, issue of *Botyu-Kagaku*, "Scientific Insect Control" bulletin of the Institute of Insect Control, Kyoto University, Kyoto, Japan, which recently reached the United States, contains five articles dealing with insecticides. The second part of two articles: "The Quantitative Analysis of r-Isomer of 1,2,3,4,5,-6-Hexachlorocyclohexane by the Polargraphic Method" and "On the Mosquitocide Incense Made of Pyrethrum Mixed with Benzophenon" appear in the issue. Three other articles in the publication are: "On the Mosquitocide Incense Made of Pyrethrum Mixed with Benzene Hexachloride"; "Comparison

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SOAP DISPENSERS ☆ PAPER FIXTURES
ERASER CLEANERS ☆ DUST PANS

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germ-i-tol (Dimethyl Benzyl Higher Alkyl Ammonium Chloride) A highly potent sanitizer and powerful deodorant. Its reliable performance as an antiseptic, germicide, bactericide, and fungicide, with its wide application, more than meets the requirements for an economical agent for Sanitizing, Disinfecting and Deodorizing. A specially processed grade meeting the specifications of Benzalkonium Chloride U.S.P. also available.

bretol A free rinsing (cetyl dimethyl ethyl ammonium bromide).

We also manufacture other quaternary ammonium compounds.

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octyl cresol Anti-Oxidant . . . An inexpensive Bactericidal Agent for industrial products, textile oils and formulations.

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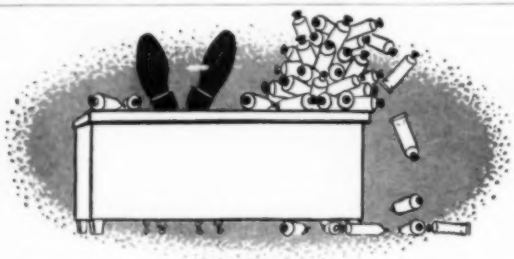

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COLLINGDALE PENNSYLVANIA

of the Toxicities of gamma-BHC, 1068 and p.p.-DDT to the Pupa of the Common House Mosquito" and "A Digest of the New Insecticide BHC."

Globe Names Fischer

The appointment of Henry D. Fischer, Jr., as sales manager of the newly-organized Globrite Products Division of Globe Chemical Co., Cincinnati, was announced last month by Lee J. Grote, president of the company. The Globrite Division was formed for the development and distribution of products for industrial cleaning, processing, and sanitary maintenance.

Wismer Heads Mich. Chem.

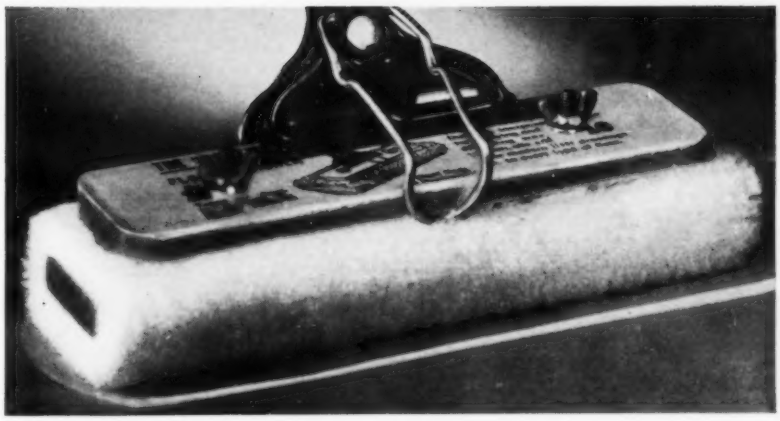
The election of Roy N. Wismer as president of Michigan Chemical Corp., St. Louis, Mich., to succeed Col. T. C. Davis, who becomes chairman of the board, was announced recently. Other new officers of the firm include: R. A. Bondurant, executive vice-president, who continues as general manager; L. D. Simmons, formerly production manager, and now vice-president in charge of operations and assistant to the executive vice-president; A. M. Byers, vice-president, Paul W. Blume, secretary, and C. G. Woods, comptroller and treasurer.

Westvaco Announces Shifts

A number of changes in personnel were announced recently by Westvaco Chemical Division of Food Machinery and Chemical Corp., New York. W. N. Wyatt, formerly division sales manager in charge of solvents and "Magnesol," is now divisional sales manager in charge of alkalis and chlorine. Donald C. Oskin, previously in charge of alkalis, has been named divisional sales manager in charge of phosphates. Arthur F. Smith is supervising sales of products formerly handled by Mr. Wyatt, in addition to handling barium and miscellaneous chemicals.

A new Chicago district sales manager, A. L. Crane, formerly in charge of the Westvaco Detroit office, has been appointed. J. M. Rousmaniere has just been named to a similar position in Cincinnati.

James R. Harris, Jr., for the past several years associated with Eagle Picher Co., has joined the Westvaco Division in phosphate sales.



New "Holz-em" applicator, made by American Standard Manufacturing Co., Chicago, comes in three block sizes: eight, 10 and 16 inches. Wool pads for applying waxes, seals, etc., to floors are washable and can be replaced.

Monsanto Names Johnson

The appointment of Dr. Hal G. Johnson to the position of assistant director of the development department of Monsanto Chemical Co., St. Louis, was announced recently. Dr. Johnson, who has been a coordinator in the development department of the Organic Chemicals Division, succeeds W. Kenneth Menke, who has been appointed assistant general manager of sales for the company's Merrimac Division at Everett, Mass. Dr. Johnson has been with the Monsanto organization since 1946.

Koppers Chairman Retires

Retirement of J. P. Williams, Jr., chairman of the board of directors of Koppers Co., Pittsburgh, from the active management of the company, was announced recently. Mr. Williams has been associated with the Koppers Co. since 1920.

Two new polishes and cleaners applied by spraying were announced recently by Wingwax Co., Dayton, O. "Wingwax" cleaner and polish at right is applied by spraying before polishing with "Wingwax" polish, right. The spraying device screws on to the threaded spout at the top of the can and can be used interchangeably. The polish can be used on either furniture or automobile finishes. It is applied at about three feet from the object to be sprayed.

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(Combined Color and Perfume Oil)

for Paradichlorbenzene and Napthalene

Any Color and Odor Combination or Without Color

$2.50 and $5.00 per Pt. $18.00 and $36.00 per gal.

WATER SOLUBLE PERFUME OILS

for Sprays, Liquid Soap, Deodorants and Disinfectants

$2.00 per Pt. ALL ODORS $14.00 per gal.

SERIES 300 OILS

for Sprays, Liquid and Cake Soaps

Large Assortment of Odors

$3.25 per lb. In 5 lb. quantity $3.00 per lb.

ALCOHOLIC EXTRACTS

for Sprays, Clay Cones and Disseminators

Write for our Price List of new low prices

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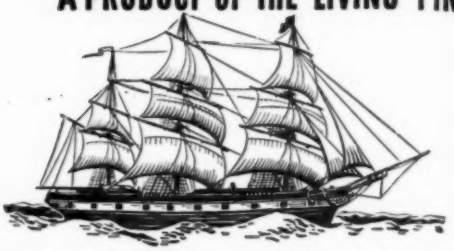

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GUM ROSIN is the *original*, *standard* rosin preferred by users because it is a pure, natural product.

Available in bags, drums and tank cars in all standard color grades. Uniformity to meet requirements. Consult your local supplier for prices and specifications, or write

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- **Olive Oil Co.**

According to rigid U. S. Navy specifications.

Lathers freely in Salt and Fresh Water and can be used for cleaning Hands, Clothing, Floors, Dishes, Walls, Bottles, etc.

Packed 20—three pound bars to shipping carton or 25—three pound bars to shipping case.

We offer the entire quantity at the price of 6c per pound F.O.B. Warehouse, New York City.

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BROWER MIXER

For Fast, Easy Blending of Dry Soap Powders and Cleansing Compounds

Mixes a perfect blend in 10 to 15 minutes. Easy to use . . . simply pour ingredients into hopper at bottom—the Brower Whirlwind Mixer does the rest. Economical . . . power cost is usually less than 5c per ton.

Five Sizes

Five sizes with mixing capacities from 700 to 4,000 pounds. Heavy welded-steel construction—built to give years of service. Designed to reduce dust. Many other outstanding features.

Over 7,000 Brower Whirlwind Mixers are in use today—in feed plants, soap and industrial factories. Fully guaranteed.

Let us send you full details and prices

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Donald Williams, left, and Donald K. Ballman were recently appointed director of sales and general sales manager, respectively, of Dow Chemical Co., Midland, Mich. Mr. Williams succeeds Leland I. Doan, who was named president to succeed the late Willard Dow. Mr. Ballman, a one-time salesman in the insecticide department, named assistant general sales manager in 1945, succeeds Mr. Williams.

Errata

In our April issue, in the article "Glycerine Market", N. N. Dalton is reported to have given figures on production of ethyl alcohol. He actually gave data on the output of ethylene glycol.

Also in the April issue, on page 85, the "Tite-Cap" screw capping machine, made by Tite-Cap Machine Co., is erroneously labeled as the "Whirlwind" screw capper, a product of Scientific Filter Co., New York.

In the same issue, we stated that Mrs. Mac B. Feinson, widow of the late founder and president of American Dispenser Co., New York, would continue to operate her husband's business. Actually, Mr. Feinson's nephew, Burton L. Feinson, is managing American Dispenser Co.

F.D.A. Gathers Data

The Food & Drug Administration is collecting data looking toward the adoption of legal tolerances for certain forms of spray residue on fruits and vegetables. The data is being gathered with a view toward holding a hearing in Washington, D. C., to propose tolerances for the compounds of arsenic, lead, and fluorine and for DDT and parathion on apples and pears, with a possible extension to a wider field.

Mathieson to Baltimore

Mathieson Chemical Corp., New York, will move its headquarters to Baltimore on Sept. 1, it was announced recently. The company formed a partnership with the Baltimore National Bank to purchase the 34-story O'Sullivan Building in Baltimore, three stories of which will be occupied by Mathieson. Reason for the move stems from the firm's recent purchase of the large Southern holdings of Standard Wholesale Phosphate & Acid Works, Inc., of Baltimore and Southern Acid & Sulfur Co.

West Mark Used Since '21

West Disinfecting Co., Long Island City, N. Y., has called attention to the fact that their trade mark "Westolite" has been used by West since 1921, not 1941 as listed incorrectly on our trade marks page in the May issue.

New Para Holder

A new type plastic container for paradichlorobenzene blocks in its line of "Enoz" moth control products was announced recently by Diversey Corp., Chicago. The new container, designed by J. O. Reinecke & Associates, Chicago, is designated "Slenderized Para Pack." It is characterized by thinness to take up less clothes hanging capacity in a closet. The new container, finished in ivory, holds two six-ounce para blocks.

Front and rear views of new container for the N.A.I.D.M.'s tentative official test aerosol.

New Enoz thin style para block hanger-holder.

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On every liquid mixing job

You can handle your mixing or blending operations simply and economically with an Alsop "Hy-Speed" Mixer. You'll find it easy to clamp to any container and adjust the shaft and propellers to the position best suited to insure the particular mix, blend or suspension your product requires. Write for complete information giving details of liquids and quantities to be handled.

STURDY PORTABLE EASY-TO-MOUNT

Alsop Portable "Hy-Speed" Mixers equipped with our easy-to-mount, quickly adjustable clamp are at work on soaps, insecticides, disinfectants, and allied chemical specialties. Standard shafts and propellers are made of Stainless Steel, although many other metals and materials can be supplied. Available in a wide range of horse-powers, propeller combinations and speeds.

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406 Green Street, Milldale, Conn.

ALSOP ENGINEERING CORP.
Filters, Filter Discs, Mixers, Agitators, Pumps and Tanks

Flavor Makers Elect Curlett

John N. Curlett, vice-president of McCormick & Co., Baltimore, was

JOHN N. CURLETT

elected president of the Flavoring Extract Manufacturers Association at their 40th annual convention in Chicago, May 16 to 18. He was formerly vice-president. Mr. Curlett is a former president of the National Association of Insecticide & Disinfectant Manufacturers.

Makes New Weed Killer

Monsanto Chemical Co., St. Louis, recently announced manufacture of 2,4,5-trichlorophenoxyacetic acid as a chemical weed killer. The new product is called 2,4,5-T for short.

Nassau Chemicals Is Formed

The formation of Nassau Chemicals, Inc., 420 Market St., San Francisco, to manufacture specialty chemicals and to serve as western distributors of chemical manufacturers, was announced recently by Charles F. Hosford, Jr., president. R. C. Whitman is vice-president and sales manager; Gordon R. Whitman is vice-president and plant manager, and A. J. Frederick, secretary and treasurer. Mr. Hosford served as chairman of the National Bituminous Coal Commission from 1935 until 1938, when he became president and general manager of Pennsylvania Coal Products Co. He served in those capacities until the acquisition of the company by Koppers Co., Pittsburgh, in 1946. Subsequently he was consultant to the chemical division of Koppers and more recently, West Coast sales manager of the division. R. C. Whitman served for a number of years with Monsanto Chemical Co., St. Louis, and later was sales manager of Agicide Laboratories, Racine, Wis. He was sales manager of Pennsylvania Coal Products Co., when it was acquired by Koppers.

New Gulf Sprayer

A new mechanical aerosol sprayer which is said to treat 250,000 cu. ft. of enclosed space in less than half an hour with an insecticide concentrate was announced recently by Gulf Oil Corp., Pittsburgh. Electrically-driven, the sprayer employs compressed air instead of liquefied gas as an aerosol misting agent. The insecticide concentrate formulated for the sprayer is being marketed under the name "Gulfspray" concentrate. The insecticide is formulated with pyrethrins (0.95 per cent) activated by piperonyl (0.67 per cent) in an odorless-type petroleum base. The sprayer weighs 50 lbs. and is mounted on rollers. The hand gun attached to the compressor by an air hose can also be operated from a stationary position.

"Kare-33", a new floor wax that combines floor maintenance and insecticidal properties was announced recently by Windsor Wax Co., Hoboken, N. J. Made for use on most types of flooring material in home, office or industrial installation, "Kare-33" comes packed in one gallon cans, and five, 30 and 55 gallon drums. It is a liquid, water emulsion type wax that is claimed to be effective insecticidally against roaches, waterbugs, ants and silver fish. The wax is non-inflammable and non-combustible. The insecticidal material in the wax is chlordane. A companion wax, "Kare-44" of the solvent type floor finish, is also available.

Hollingshead Research

Creation of a new products development division and plans for several new research laboratories were announced recently by R. M. Hollingshead Corp., Camden, N. J. The new laboratory division is a part of an extensive research program that began shortly before World War II, and has led to the development of a number of well equipped laboratories. The new division will be assigned to new product research and development. Research operations of the new division will function as a separate organization apart from the firm's other research laboratories. Direction of the new research unit will be in the hands of A. E. Moore, chief chemist, who will be assisted by Dr. Vito Esposito. Mr. Moore has been with the firm since 1923. Five years later he was appointed assistant chief chemist to supervise compounding and development of "Whiz" products.

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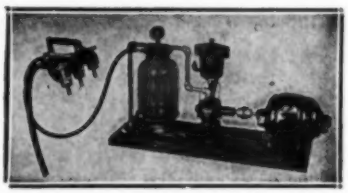

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New Per-mo Service

Per-mo Products Co., Kansas City, Mo., manufacturers of rodenticides and insecticide specialties, has established a new department to handle private formulations and private label packaging for the trade, according to Oscar S. Schaffer, president of the firm. Compounding of special formula rat and mice products, moth liquids and other insecticides, flameproof compounds, cleaning specialties, and allied chemical products are included in the new service. Chemical development of new items to meet specification or performance requirements has also been announced. Finished compounds will be supplied to the trade only in bulk or packed and labeled as required, according to the announcement.

Dominion Tar Expands

A new plant for the production of naphthalene is being put into operation shortly by Dominion Tar & Chemical Co. of Canada at Toronto. In addition, a subsidiary, Dominion Alkali & Chemical Co. is going into production with its expanded facilities for chlorine and caustic soda at Beauharnois. A third subsidiary, which will produce salt will be operating in about a month. When the three units are in operation the company will have completed a $6,400,000 expansion program begun about two years ago.

Gloss Evaluation Article

Daniel Smith, writing in the latest (winter) number of *Interchemical Review*, in an article, "Problems in Gloss Evaluation," states that "any physical method for evaluation, if it is to be useful, should give results which are invariably in agreement with the subjective response under specific conditions." He further points out that "the present state of gloss measurement and specification is considerably inferior to that of color, and no general agreement prevails concerning the adequacy of any of the proposed methods." In the article, Mr. Smith says that "the evaluation and specification of gloss therefore require investigations into both psychology and physics if satisfactory methods are to be obtained." The *Review* is published by the research laboratories of Interchemical Corp., 432 W. 45th St., New York 19.

Reilly Chi. Plant Fire

One of four buildings comprising the Chicago plant of Reilly Tar & Chemical Corp., Indianapolis, was damaged in a recent explosion and fire at the plant. Four persons escaped unharmed from the one and one-half story structure to which damage estimated at $30,000 had been done.

New Clarkson Plant

Clarkson Chemical Co. recently announced the opening of a new custom compounding plant at 919 N. 9th St., Philadelphia, designed especially for handling materials in the soap and sanitary chemical field. The latest type mixing machinery has been installed in the plant.

Form Tri-state PCA Group

The Arkansas Pest Control Association will join Mississippi and Tennessee in a tri-state association. The state group was to meet at Little Rock, Ark., May 21, to complete plans.

Heads Sinclair Sales

Charles F. McGoughran has been appointed general sales manager in full charge of all sales activities of the Sinclair Refining Co., according to an announcement by P. C. Spencer, president. He was formerly executive assistant to the vice president in charge of marketing. M. F. Braeckel, president of the Richfield Oil Corp., New York, Sinclair subsidiary, has been appointed assistant general sales manager for Sinclair Refining.

Joseph Pelletier Dies

Joseph E. Pelletier, 62, owner of Ideal Spray Co. of Lynn, Mass., and one of the original group of organizers of the National Pest Control Association, died recently. His son, Robert, is continuing the business.

Use of Aluminum Equipment

The Associated Drug and Chemical Industries of Missouri heard Ellis D. Verink, Jr. of the Aluminum Company of America speak at their monthly luncheon meeting at Hotel Sheraton, St. Louis, recently. His topic was the "Use of Aluminum Processing Equipment in Chemical and Pharmaceutical Manufacturing."

Lehn & Fink Products Corp., Bloomfield, N. J., recently announced "O-Syl" germicide. The new compound is characterized by freedom from any typical disinfectant odor, associated with coal tar (cresylic or tar oil) preparations. Because of its non-specific antibacterial efficacy, it is equally well suited for disinfection (of inanimate objects) and antisepsis (on the human body). It has a phenol coefficient of 3.5.

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